

The magazine for large Plastic Pipe Technology (up to DN/ID 5000mm)

No. 26/2021

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Dear Readers,

it's December 2021 and Covid-19 is still determing our day-to-day-life. It's still hard to visit family members in care homes, many people have lost relatives or loved ones to the virus and a normal life isn't possible, which affects all of us. While we thought a year ago that everything would be over in a few weeks or months, we now have to slowly come to terms with the fact that we will probably have to deal with the pandemic

and its consequences for a very long time to come. In the summer, there was a small ray of hope with very low infection rates, promising vaccines and a relatively high vaccination rate. During this time, we could all catch a breath and have a few weeks of what almost felt like normal life again, concerts and football games started again, bars and clubs opened back up, and life felt a little lighter. But in the fall, the good mood toppled and new Covid-19 variants and extremely high infection rates and vaccination breakthroughs again led to many restrictions in the private and business sectors. Now we are on the verge of a complete lockdown again

and have to worry about being allowed to spend Christmas with our family - where Advent and Christmas are usually the most special time of the year to spend with your family, baking cookies, shopping presents and having lots of great food together. During the summer months, our salespeople were able to make at least a few business trips to visit customers. However, many countries are still in lockdown or do not allow visitors into the country, making it impossible for us to present and sell our machines there. So this year has been another difficult year for companies and the economy as a whole. But we, as a mid-sized company, are making the best of it and trying to continue to keep the business going. Our salespeople continue to make

sales calls via online meetings like Zoom, our machines are still set up virtually via cameras and VR goggles, and training and maintenance are held online. We manage quite well that way, even though we all very much want normality back.

The personal contact with our customers, having a beer after the work is done, travelling to some of the most beautiful places on earth to sell our machines - all that is definitely missing.

> We try to preserve a bit of normality with our Krah-TV videos, which we regularly post on YouTube. There we present different Krah customers and partners and the production of pipes in different countries, present accessories from our Krah online store or show our Krah pipes in use on construction sites. Also check out our online store every now and then, there are always some good offers for our accessories, spare parts and marketing material. Even though this year was again a very "special" year and it would be a lie to speak of a good year, we all leave the year with a positive feeling and a happy heart and look forward

full of hope to the new, hopefully better year. After all, in the end, everyone is responsible for their own feelings and personal success. Maybe we should think about what we have and how well we are doing - instead of only looking at the negative things. Then we will quickly realize that the positive things outweigh the negative, and we can actually consider ourselves very lucky. Let us all start the new year with a lot of courage, joy, action and good thoughts, then it can only be a good year - no matter what comes.

With best regards,

Alexander Krah



San Giorgio Bridge project (Genoa)

Pipes DN/ID 2500 mm

CENTRALTUBI S.p.A. was the company of SG (System Group) who manufactured and delivered the SGK HDPE large diameter spiraled pipes with for the construction works of the new San Giorgio Bridge in Genoa (Italy).

This bridge became famous as it was the newly reconstructed after the collapse of the previously "Morandi Bridge".

In this case, the pipes, DN/ID of 2000 mm and 2500 mm, have been requested by the construction company with the clear objective to guarantee to some

improvements like faster execution time and workers' safety on the site. These factors were extremely important for the project in itself and they have been highly. Furthermore, in addition to the pipes, there was the need to respect some special technical requirements related to the fittings: the pipes had to be installed very close to some pylons of the bridge and fittings needed to stand this tightness.

In this case, as the trait had to be trusted and extended throughout the lifetime of the new infrastructure, the solution provided was the electrofusion coupler joint system, which encountered appreciation and approval. To safeguard all these technical requirements SG technical department developed "madeto-measure" solutions that satisfied and improved the cost-benefit ratio. All in all, SG team provided an all-round service: from design to installation with their own dedicated welders. Multiple images of this project can be found on our social network profile "Flickr" on the "SGK: Ponte di Genova 2020 Genoa bridge" album.

Author:

System Group, Italy





PE 100 spiral wound pipes

for drinking water structures

Wound pipes made of PE 100 are used very successfully within the FRANK Group for the manufacture of structures for drinking water supply. The production is carried out in the pipe plant in accordance with DIN EN 16961 using modern PE 100 materials that have been approved by the German Institute for Construction Technology (DIBt).

For the wetted area of the drinking water chamber and in the access area of the valve chamber, a blue PE material is homogeneously applied to the inner surface of the wound pipes using a coextrusion process. The blue raw material type has the necessary approvals in accordance with KTW and DVGW guidelines for drinking water suitability. The outside of the wound pipes is made of UV-resistant black PE 100. The FRANK Group produces wound pipes up to an inside diameter of DN 3500 mm. As for sewage pipes, the static design for buried pipe structures is carried out in accordance with the ATV-DWA A127 guideline.

FTW® drinking water structures of FRANK GmbH

When designing the pipe structures, the respective requirements of the operators are taken into account. Usually, drinking water tanks are designed with 2 water chambers as well as a technical room (slide chamber). The usable volume of drinking water tanks made of wound pipes is in a supply range of approx. 6 m³ to 800 m³. Up to a size of approx. 2 x 40 m³, the

structure can be completely prefabricated and delivered to the construction site in one piece - as a so-called "system tank". In the case of larger tanks or special transport route requirements, delivery is made in individual parts (prefabricated tanks), which are then assembled and welded on site by DVS- and DVVGW-certified specialist welders.

This means that in areas that are difficult to access, a drinking water reservoir can be delivered in individual components and assembled and tightly welded within a few days. All system-relevant components are prepared in advance to such an extent that completion and final assembly on the construction site can be carried out without any problems. For example, a drinking water tank for the water supply of a mountain hotel in the alpine region (municipality of Aschau - Kampenwand) was prefabricated to such an extent that the individual parts were adapted to the load-bearing capacity of the helicopter.

The location of the tank on the Kampenwand in Chiemgau is at an altitude of about 1500 m above sea level. In order to ensure a future-proof supply of drinking water for the hut and the mountain station of the Kampenwand cable car, an FTW® drinking water tank (storage pipe with connected service chamber) made of PE 100 was installed approx. 70 m above the mountain pasture.

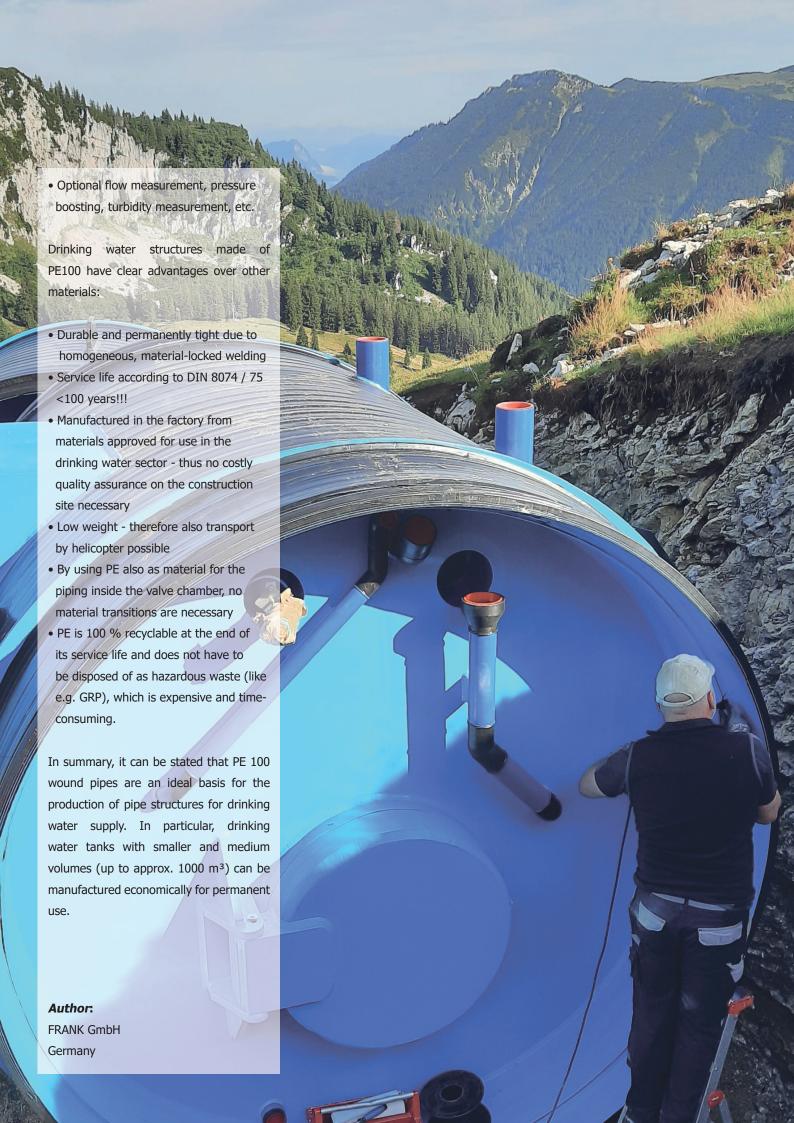
Since the installation site is located in

alpine terrain, it was necessary to use a cargo helicopter as a means of transport for the last kilometer. The load capacity of the available helicopter of approx. 3.0 tons determined the size of the individual components and 3 prefabricated individual parts were delivered and flown to the installation site. There, at the height of the top station, the system components were assembled and the complete structure was tightly welded together with the support of FRANK specialist personnel and a specialist construction company.

After successful assembly, the complete FTW® drinking water reservoir with service chamber was installed and covered professionally in accordance with the relevant static boundary conditions. The basic design of drinking water structures in Germany is regulated by the DVGW. Code of Practice W 300 (Parts 1 - 6) describes the design, static calculation, operation and cleaning as well as necessary construction details. These system-relevant details are taken into account in the design of the structures - planning is carried out with the aid of 3D CAD systems in the FRANK Group.

The structures are already provided with essential equipment elements in the factory - e.g.:

- pipelines with fittings for inlet, outlet, ventilation, drainage
- object protection door, underwater entrance, air filter, lighting



Rice crop

The art of keeping land under water

After 10 years, we are once again part of a challenging project, in which we will have to get 44.000 hectares of land under water.

Rice is grown in more than a hundred countries, with a total harvested area of approximately **158 million hectares**, producing more than **700 million tons** annually (470 million tons of milled rice). Nearly **640 million tons of rice are grown in Asia**, representing **90% of global production**. **Sub-Saharan Africa produces about 19 million tons** and **Latin America some 25 million tons**. In Asia and sub-Saharan Africa, almost all rice is grown on small farms of 0.5–3 ha.

Yields range from less than 1 t/ha under very poor rainfed conditions to more than 10 t/ha in intensive temperate irrigated systems. Small, and in many areas shrinking, farm sizes account for the low incomes of rice farm families. Rice grows in a wide range of environments and is productive in many situations. More than anywhere else in the world, rice dominates overall crop production (measured by the share of crop area harvested of rice) and overall food consumption (measured by the share of rice in total caloric intake) in rice-producing Asia. In Latin America and the Caribbean, rice was a preferred pioneer crop in the first half of the 20th century in the savannas of Brazil, Bolivia,

Colombia, Uruguay, and Venezuela, and in forest margins throughout the region. Today, rice is the most important source of calories in many Latin American countries, including Ecuador and Peru, Costa Rica and Panama, Guyana and Suriname, and the Caribbean nations of Cuba, Dominican Republic, and Haiti.

It is less dominant in consumption than in Asia, however, because of the importance of wheat, maize, and beans in regional diets. Brazil is by far the largest producer, and it accounts for nearly half (46% in 2006-08) of paddy production in the region. After Brazil (11.6 million t), the largest producers are Peru and Colombia (2.5 million t each in 2006-08), followed by Ecuador (1.6 million t). Ten years ago, in 2011, our client Pilaga had the need to irrigate their rice crops with water from the Paraná River in the north of the Province of Santa Fe.

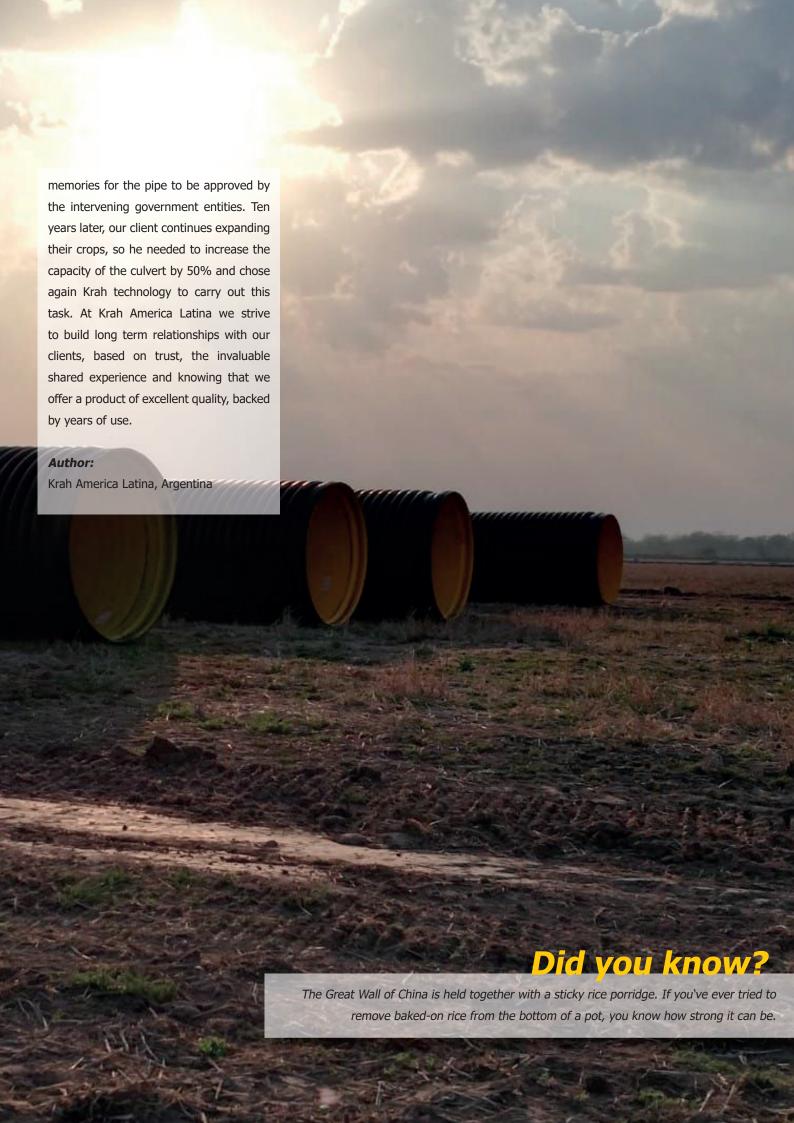
In order to irrigate these crops, they needed to cross underneath the provincial road 1 "Teofilo Madrejon", a road of great relevance in the province. Due to the extension of cultivated land and the large amount of the water that rice crops demand, the amount of water necessary was huge and therefore the section required of the whole conduction, including the culvert for the road crossing, would be important.

In addition to the dimensions of culvert, the project posed other challenges; it had to withstand 1kgf/cm² of nominal pressure and the significant vehicular loads of the transit that would constantly circulate over it. All the mentioned conditions had to be fulfilled while complying with the strict governmental regulations that apply when working on provincial roads entail and minimizing the time of interruption of transit circulation.

All of these conditions and "complications" would rule out most pipes on the market, but they seem tailor-made for Krah pipes. Thanks to its wide range of diameters from 300 mm to 4000 mm, the ability to produce pipes in an infinite range of stiffnesses and nominal pressures makes Krah technology stand out in these types of situations.

But perhaps the defining aspect for which Krah was selected to provide the pipes in this opportunity was the Krah Electrofusion Welding System. This unique system of jointing allows the pipes to be previously welded in segments with the same length of the road's width, significantly reducing the duration of the work and minimizing the inconvenience to road traffic.

The culvert was finally built with 4 Krah pipes in parallel DN/ID1600 of 100 m long, each of them is capable of transporting a flow rate of approximately 4m3/s. Based on all the conditions mentioned before, the Krah America Latina Engineering Department designed a K-profil PR pipe and provided all the necessary calculation



Celebrating the Unlimited Potential of the Plas

...and congratulating Mr. Ramesh Parasuraman as the new Pres

KRAH congratulates our Indian representative Ramesh Parasuraman of Allied Solutions on being elected as President of SOCIETY OF PLASTIC ENGINEERS, INDIA from 2021 to 2023. He was the Vice President from 2019 to 2021. We are sure that SPE India will attain new heights, with Ramesh now at the helm.

KRAH has always been supporting SPE INDIA for their Conference in the past and have actively participated in the PLASTIC PIPE Conferences in 2015, 2017 and 2019. We are also looking forward to actively participating in their upcoming Plastic Pipes 2022 International Conference.

Celebrating the Unlimited Potential of Plastic Pipes Industry

Having all industry experts gather on a common platform to discuss the future of the plastic pipes industry, is indeed a landmark occasion. Especially if the platform is one designed for knowledge sharing, receiving and mutually benefitting the plastic pipes industry. All this and more was witnessed at the last held Plastic Pipes 2019 conference organised by the Society of Plastics Engineers (SPE) India.

The Plastic Pipes 2019 conference held on 21st and 22nd November 2019 at Mumbai - in its third edition - proved to be a massive success. What made this conference unique is the fact that it

welcomed industry stalwarts from across the globe to share knowledge about the future of the plastic pipes industry and how sustainable the industry at large can be made. This event was organised by the Society of Plastics Engineers (SPE) India. Opening the two-day conference, Vijay Boolani, President, SPE India spoke about the inception of the plastic pipes industry (PPI) in India as well as globally and how far it has come. He shared:

"Historically, the world relied on materials like metal, concrete and clay; however, thanks to the technical innovation and rapid development by the stakeholders, plastics too have become a material of choice and sees application in sewage systems, oil and gas industry, chemicals, clean water and many more areas."

Further talking about the growing plastics market trends globally, Vijay Boolani shared that North America alone is one of leading trend accelerators in the plastics industry. As an economy, the United States of America itself plays a key role as the world's largest market. Therefore, any change in demand and trends here cannot be ignored. "Closely following North America is APAC, in which China is closely followed by India.

And in the times to come, will occupy more markets than before, by clocking impressive growth by 2023," Vijay Boolani said, sharing his projections. Vijay Boolani also mentioned that research suggests that oil and gas innovation in these markets is bound to lead the market for PPI.



Mr. Ramseh Parasuraman, Allied Solutions

tic Pipes Industry

ident of SPE India

While the European market will attain a healthy compounded growth rate of 5.18% during 2019 - 2023, it is said that the Indian market for PVC, in terms of CAGR will grow over 14% till 2025. "All these changes are a chain-reaction to the favourable government policies, infrastructural growth, investments, rapid industrialisation and booming urbanisation in these geographies."

Further leading the discussion on the roadmap for PPI and its last five decades in MENA and South Asia, Robert J. Lawrence, CEO, ProjAC shared, "The last 5 decades have been exciting for the industry and have laid a strong foundation for our next decades to come. Companies in the Middle East have taken chances and earned from their risks. All thanks to them and their innovative hats, two decades down we have a catalogue of firsts. We have giant offshore pipelines and have huge large diameter horizontal directional drilling poles.

We have, as an industry, seen such rapid growth. When we did our market research 5 decades ago, plastics were projected at 2 - 5% of the market; however, we now stand at 35%."

Yet, he emphasised, that the industry still needs to work on a consistent regional approach and clean the industry specifications and ensure that the quality controls remain to be the key to businesses. Also present at the conference, Dr. Brian

G. Landes, President, SPE Global shared his views on forming the sustainable future for plastics. He questioned the industry players on their innovation and end-results. He asked, "While innovation is key to the plastics industry, and we believe we are doing a good job there, we are questioned on how much our industry is changing for the societal impact?" He further shared that all one hears is that plastics are a threat for our planet, never hear how it changes ones' lifestyle and, "Thus, it's important that we, as an industry, have this conversation within ourselves and with our communities and make them understand how we can change a few things amongst ourselves to be more successful. We have to share the positive impacts of the industry and make people understand them too. What we need is a perspective change and that needs to come in quick." Closing the twoday conference, Patrick Farrey, CEO, SPE USA shared his take on how SPE India, as part of SPE Global, is trying to build a bridge within the industry for a better future. He shared, "SPE Global is spread across the globe, has over 22,000 members worldwide. We are a global society with stakeholders across the value chain. We are a diverse organisation, but have a commonality that we all work in the plastics business. Our forte has been organising seminars and technical conferences, in addition to journals and reports that add value to members and industry, at large. Our content is turned into educational content for market awareness." Further highlighting on SPE, he mentioned, what SPE takes pride the most in is the fact that seminars like such help companies to create business opportunities at this common accessible platform - creating a win-win opportunity for all. This event later culminated into an industry connect platform with Rajendra Pawar, Secretary, Water Resources Department addressing the gathering on the status and prospects of irrigation projects in Maharashtra and the role of plastic pipes. Also giving their insights at the conference were Murali Adhyatmabhattar, Technical **Business** Development Manager, United Special Services LLC who shared his knowledge on innovative, high-performance internal lining solutions while Dr. Niranjan Swarup, Director General, IndSTT spoke about converting pipe dreams to dream pipes in trenchless applications.

Also present at the conference was Dr. Purnima Jalihal, Sc G and Head, Energy and FreshWater, NIOT who spoke on HDPE pipes in innovative configurations for ocean thermal desalination. All this and more made this event a wholesome learning experience for all. It's noteworthy to mention here that the event would not have achieved such resounding success had it not been for the efforts and guidance of Ramesh Parasuraman, Vice President SPE India and Rajiv Sanghavi, International Counsellor, SPE India. SPE India is looking forward to welcoming all the delegates and speakers to the Plastic Pipes 2022 conference, at Mumbai. After



the success of Plastic Pipes 2015, 2017 and 2019 conferences, this is the fourth Plastic Pipe conference organised by SPE India. As usual, presentations from eminent speakers and industry leaders on subjects ranging from technology for laying of pipes, standards, emerging segments, processing know-how and advancements in machines, additives and raw materials etc have been planned in this conference.

The demand for potable and irrigation water, sewerage and drainage networks, gas distribution etc has never been greater.

At present only about 35% of urban households have piped water supply whereas the households consume only 10% of water and agriculture consumes over 70 % of the available water. Only about 2% of our urban areas have both sewerage systems and sewage treatment plants which clearly shows how important is the water supply infrastructure in the "New India". Besides that, over 40% of existing

piped water is simply lost due to rusting of old pipe lines. Plastic Pipes play a very crucial role here and have a bright future and prospects. Since the Introduction of Plastic Pipes over five decades ago, Plastic Pipes have become the material of choice for nearly all applications ranging from the Water supply, Sewerage and Drainage, Agriculture, Plumbing and Sanitary, Communication and Ducting, Industrial, Irrigation Systems, Offshore and even Oil and Gas. With improvement in the production and processing techniques, use and its applications over the years, it has been proved beyond doubt that they are the most superior material for a wide range of installations across the above segments due to its inherent properties, superb corrosion and chemical resistance, greater logistical and installation cost advantage, stronger, tighter, leak-proof and self restraining joints, zero maintenance etc. The other added advantages are alternative installation methods (no-dig for example) which can save considerable time and money in many applications,

particularly rehabilitation of pipelines etc due to its light weight and easier on site handling. For example, PE is about one eighth of the density of steel, so it does not require the use of heavy lifting equipment for jointing and installation. Above all, most of the Plastic Pipes have better sustainability credentials with the environment in mind as the Plastic Pipes require less energy in production than alternative material. Even at the end of their useful life, Plastic Pipes can be easily recycled. All these combined advantages, coupled with potentially long service life (of over 50 years) leads to further cost advantages in the long term. The whole life cycle cost, in which all the costs associated with a pipeline throughout its lifecycle, from material cost to installation and maintenance, even on the most conservative estimates, have found that installed costs get reduced by as much as 70% and the whole life cost by over 45%, apart from savings in carbon footprint.

Today, with the rapid pace of urbanization, by the year 2050 over 70% of the population would have moved to urban locations and there will be 600 million more Indians who will demand their share of water and food, but by then, the per capita availability of water is projected to fall to dangerous levels, from the present 1545 cubic meters. Even now, about 220 million Indians have access to less than the minimum level of 1000 cubic meters, indicating severe stress.

Various learnings from different missions set up by the government have shown that infrastructure creation should have a direct impact on the basic and real needs of people, primary amongst that is to provide clean, safe drinking water and sanitation to the citizens. Providing these basic services to households and building amenities in cities and generally improving the infrastructure facilities which will improve the quality of life for all is a national priority today and is being implemented with the required zeal. An estimate of funds required over 20 years at 2010 prices was made by a high power committee set up by the government which estimated that over Rs 39.20 Lakh Crore was required for creation of urban infrastructure, which includes Rs 17.30 Lakh Crores for urban roads and over Rs 8.00 Lakh Crores for services such as water supply, sewerage, solid waste management and stormwater drains. Besides this, the requirement for O&M was separately estimated to be Rs 19.90 Lakh Crore. To facilitate this, AMRUT (Atal Mission for Rejuvenation and Urban Transformation), NRDWP (National rural drinking water Programme), Namami Gange, Pradhan Mantri Krishi Sinchayee Yojana, has been launched in which five hundred cities will be taken up initially and the focus will be on water supply, sewerage facilities, stormwater drains etc apart from providing other amenities for transport and recreation.

In addition to this, the Smart City Mission proposes support to the extent of Rs 48,000 crores for 100 cities on an average of Rs 100 crores per city per year to which an equal amount will be matched by the state governments and nearly Rs One Lakh Crore will be available for smart cities development. The consolidation of demand for pipes in agriculture and micro-irrigation schemes will add further volumes

to the demand and holds tremendous potential. The government has committed over Rs 3.5 Trillion to be spent under the ambitious Jal Jeevan Mission, aimed at providing potable water. A new ministry Jal Shakti has been formed to address all the water issues, including management of water resources and drinking water supply in a holistic manner. The Jal Shakti ministry was formed by integrating the ministries of water resources and drinking water and sanitation and it aims to work with the state governments to ensure Har Ghar Jal to all rural households by 2024. A paradigm shift is being witnessed in the city gas distribution (CGD) sector where it presents an opportunity to give 7 out of 10 Indians living in 400 cities access to cleaner fuels. The coming years would see a massive jump in the PNG and CNG infrastructure with the laying of over One Lac KM polyethene pipelines attracting investment of 15 to 20 billion US Dollars.

The Plastic Pipe industry is growing @ 8% or more which is well above the GDP growth rate of 5 or 6% (unlike the projections) but has the potential to grow at double that rate, given the need of the hour and the impetus and resources being made available by the government and certainly holds promise not only for consolidation and expansion in the industry but also to have an all-round improvement in the quality and reliability aspect of both the product offering and associated services, apart from increasing productivity and reliability.

The Plastic Pipes industry will certainly be the beneficiary of all these upcoming and existing opportunities in the infrastructure segment by the government. SPE India had successfully organized the Plastic Pipe Conferences in 2015, 2017 and 2019 with all the above aspects in mind and with a clear intention to bring all the stakeholders in the entire value chain together to share and exchange knowledge, overcome the challenges and identify opportunities for growth.

Plastic Pipes 2022, will be organized in the middle of 2022, by SPE India will take it a step forward and continue to ensure sustained interaction between the stakeholders and look forward to active participation and support from the industry.

Author:

Krah Group & Ramesh Parasuraman, Allied Solutions

Krah goes into space....

New Mission: Making children happy

The teachers of the St. Elisabeth day care centre in Birken-Honigsessen, close to our headquarter, have come up with a very special project. During the lockdown, the day care centres were also closed for quite some time, and the teachers came up with a good idea to keep in contact with the children: They wrote funny nonsense stories in which they themselves are the actors and sent them to the children.

In the stories they tell about their adventures in space. With the help of a big rocket, they went to the moon, to the Milky Way, past the rainbow and finally towards the sun.

During the individual adventures, a wide variety of souvenirs were collected for the children. This in turn gave rise to the idea of somehow bringing the rocket with which the teachers had flown into space one after the other in the stories into the day care centre for real. So we came up with the idea to use a "test pipe" and transform it into a space rocket. The children decorated it with some sticky stars and a moon to make it as realistic as possible.

This rocket now stands in the entrance area of the day-care centre and is played with every day with the necessary

equipment and self-made astronaut suits. It was a successful project for everyone, which has now come to an end at the end of the kindergarten year.

We are always happy to help realizing special peojects like this one, and we are planning to keep on supporting those creative ideas in the future as well - as a good example that Krah pipes may not only be used for professional reasons.

Author: Lisa, Krah Group





Are you already following us on Social Media?

During the past 2 years many things happened online and digitally. That's when we started to get more active on our Social Media accounts, trying to connect with our customers and partners through the screen. We started filming YouTube videos, explaining the Krah technology, explaining our E-boxes, our machines and how customers produce pipes with our machines. We also take you to construction sites around the world and show you our pipes in action. Sounds interesting? If you haven't already, check out our YouTube channel and give us a like or subscribe. A lot of work goes into one video - mostly many hours - so we would be really happy to get some feedback.

We are also very active on Instagram and LinkedIn, on Instagram you can learn a lot about the "Behind-the-Scenes" of Krah (which is really funny), and on LinkedIn you can find lots of interesting projects carried out with our pipes and machines. Again, we appreciate your support by liking or sharing our posts - we are also grateful for any comments and suggestions for improvement.

@derkrah

@krahpipes

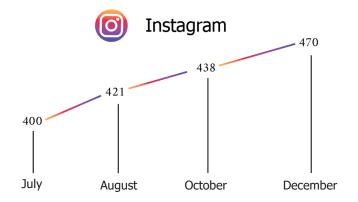
@krahnet

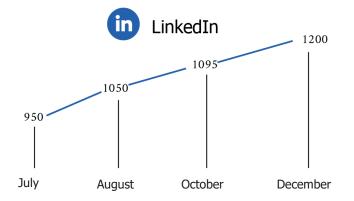
As the statistics show, the numbers of followers and subscribers are steadily increasing. This makes us very happy and shows us that you appreciate our efforts and motivates us to continue.

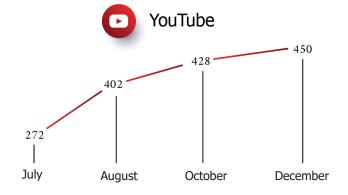
Help us grow even more!

Author:

Lisa, Krah Group











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