

# JENDAMARK

MAKING OUR MARK IN GLOBAL AUTOMATION

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OF TECH  
AND IRONMEN:

*Inside Industry 4.0*





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# Talking TECH

Today, Industry 4.0 and its constantly evolving technologies are disrupting every industry worldwide. As the face of automotive manufacturing continues to change, Jendamarck Automation is working harder than ever to stay ahead of developments and use them to the benefit of our customers.

As a tech-driven company, we have clear plans in place to chart a course through the murky waters of Industry 4.0 (see page 2) and we are continuously sharing new ideas and skills across the Group to ensure that our customers get the best possible product, no matter where they are (see page 16).

Success and growth go hand in hand. In August, we launched our newly expanded **Jendamarck Techcellency facility** (see page 12). Growth is not just in terms of bricks and mortar; it is also in better brand recognition, creating value for customers and employees, offering a wider range of services to a larger geographical market, and developing economies of scale.

These advancements in our manufacturing capabilities have borne fruit, with Jendamarck Techcellency successfully delivering its biggest engine assembly line to date (see page 15) and Jendamarck South Africa completing the longest automated production line in the Group's history (see page 14).

Speaking of superhuman feats, you'd be forgiven for thinking that Ironman African champion Kyle Buckingham was more machine than man. Read about this Jendamarck-sponsored triathlete's toughest sporting challenges on page 18.

And when you're done, head on over to our new-look Group website: [www.jendamarck.co.za](http://www.jendamarck.co.za) for more!

Yours in automation,

**Himanshu Jadhav**  
EDITOR

*P.S. Remember to follow us on Facebook, Instagram and LinkedIn to keep up with the latest developments!*

*Growth is not just in terms of bricks and mortar; it is also in better brand recognition, creating value for customers and employees, offering a wider range of services to a larger geographical market, and developing economies of scale.*





# Inside INDUSTRY 4.0

The Fourth Industrial Revolution – or Industry 4.0 as it is commonly known – is changing the face of every industry worldwide. Jendemark Automation has mapped a clear path through the technological maze to take automotive customers into the future of manufacturing.



## Wheels of industry

Here is a brief history of the evolution of manufacturing over the last 250 years:

### 1<sup>st</sup> Industrial Revolution (1760 to mid-1800s)

The rise of the steam engine: Steam power and hydraulic presses are used to mechanise component assembly, bringing workers together in factories and changing the face of production facilities.

### 2<sup>nd</sup> Industrial Revolution (1870 to 1914)

The power of electricity: Henry Ford of the Ford Motor Company pioneers the use of motorised conveyors on moving assembly lines, giving rise to mass production, which dramatically reduces production costs and makes motor vehicles more affordable.

### 3<sup>rd</sup> Industrial Revolution (1969 to 2000)

The digital revolution: The shift from analogue electronics and mechanical systems to digital information technology, using computer systems, programmable logic controllers and robotics to automate elements of the production line.

### 4<sup>th</sup> Industrial Revolution (Present – ongoing)

Industry 4.0: Smart machines use artificial intelligence to exchange and analyse data in real time and make decisions based on this shared data to optimise their own performance and improve production efficiency.

Historically speaking, each of the four industrial revolutions has been set in motion by the advent of a radically different and new technology. But the goals have always been the same: to increase efficiency and reduce manufacturing costs.

**“Every project we at Jendemark take on under the banner of Industry 4.0 must improve efficiency or reduce the cost of the product...”**

“Every project we at Jendemark take on under the banner of Industry 4.0 must improve efficiency or reduce the cost of the product for ourselves or our customers,” says sales and design director Yanesh Naidoo. “Otherwise it’s a pointless exercise.”

Naidoo says there are many ways to achieve these twin goals, and it differs from industry to industry, which is what makes defining Industry 4.0 so problematic.

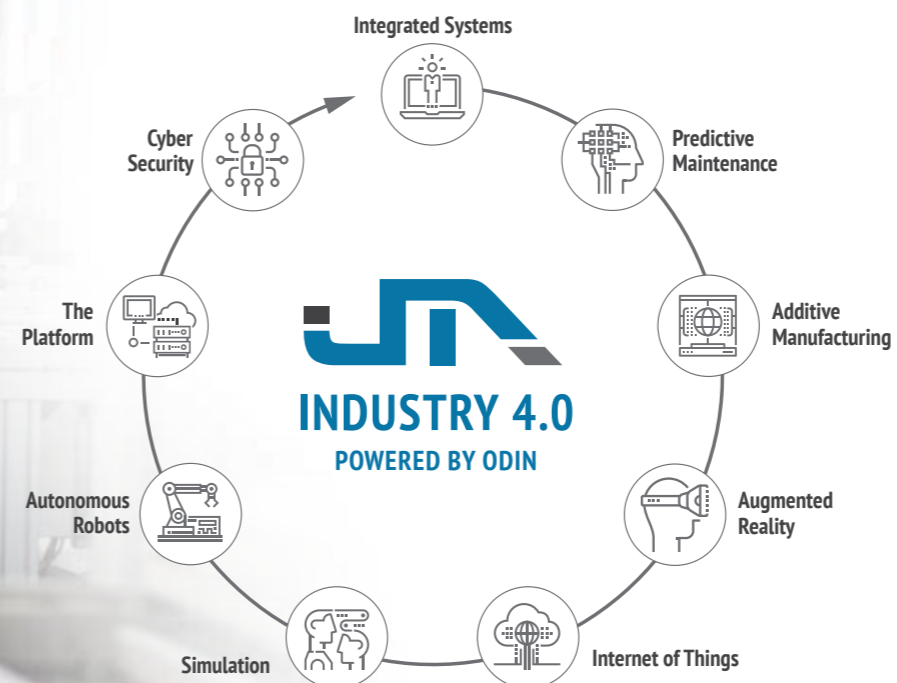
#### AN EVOLVING DEFINITION

“At Jendemark, we’ve established our own nine-point definition, which has the potential to add value for our customers and gives us a path to follow moving forward.”

The nine touchpoints are: integrated systems, predictive maintenance, additive manufacturing, augmented reality, the Internet of Things, virtual reality, autonomous robots, block chain and cyber security.

Given the accelerated rate of technological development, Naidoo says the definition is a constantly evolving one, with Jendemark opting to focus only on the first six points at this stage.

“As much as industries grapple with defining Industry 4.0, it is equally difficult to know if you’re ahead of the curve or not.”



“We know that we’re not experts in every one of our focus areas, but we don’t have to be. We understand the possibilities and, where necessary, work with trusted partners to provide the right solutions for our customers.”

#### INDUSTRY 4.0 VS AUTOMATION

The interesting thing about Industry 4.0, Naidoo believes, is that it is not necessarily synonymous with automation.

“It’s first and foremost about elevating efficiency,” he says.

“If a particular country assembles a component manually because labour

is plentiful and inexpensive, we need to find a way of making that process more efficient. That doesn’t mean automating it because that’s once again adding cost.”

So, the Industry 4.0 solution would be to make the operator more efficient by, for example, providing augmented reality glasses or making the workstation screen more efficient.

“In a country where everything is already automated because labour is expensive, exploring solutions such as predictive maintenance could increase efficiency by reducing machine downtime,” says Naidoo.





## INTEGRATED SYSTEMS

The success of any Industry 4.0 initiative lies in the ability to capture and analyse big data as part of the human or machine decision-making process. For this to happen, systems must be integrated to enable them to “talk” to each other.

To this end, Jendamar has developed its own standardised software platform called Odin (after the Norse god of wisdom).

“A big part of Industry 4.0 is software,” says Yanesh Naidoo. “We wanted to establish a standardised platform on which all of our software could work. We currently have three modules running on Odin and the number will continue to grow.”

### ODIN\_WorkStation

The first module, called WorkStation, is an application that runs on the shop floor. The easy-to-use visual interface guides operators through the component assembly process.

“This is especially useful where different types of engines are built on the same line. The operator doesn’t have to remember each process and becomes more efficient,” says Naidoo.

The application tracks process data, runs diagnostics and includes a

traceability interface as part of the quality review process.

“The maintenance interface allows the operator to call the maintenance team from the screen, thereby getting assistance faster and reducing downtime.”

He says the addition of augmented reality “smart glasses” takes this a step further, allowing remote maintenance support “through your eyes”, which Jendamar first used on a recent Audi project in India.

### ODIN\_LineWatch

The second module, LineWatch, can be viewed on a screen above the production line or as a computer app.

As a visual snapshot of the entire production process, which interfaces with SAP, it allows managers to keep an eye on all aspects, such as the number of parts produced per shift, those queued, in progress, finished and dispatched, as well as the throughput rate.

Live cycle time data and built-in SMS or email notifications alert relevant groups to progress or problems.

### ODIN\_Manager

Manager is a web-based reporting and human-machine interface (HMI) administration system, which can be accessed securely from any web browser.

The HMI set-up and LineWatch software share data with a server, which allows Manager to analyse trends, deliver customised quality reports and track maintenance job cards. Managers can see at a glance the results for a particular part or station.

“The process engineer can set up work instructions and change processes to improve efficiency on the shop floor without the cost of calling a programmer,” says Naidoo. This, he explains, is thanks to Jendamar’s PLC standard, called Cube, which integrates tightly with Odin.

“Your online changes are effected down to the PLC layer on the shop floor.”



## PREDICTIVE MAINTENANCE

Adding a predictive maintenance element to an already efficient automotive assembly line can add unnecessary costs. Jendamar has found a better way to predict machine downtime, which will soon be added as the fourth module to its Odin software platform.



“Typically, a well-maintained machine runs at the industry standard of 95% uptime,” says Yanesh Naidoo.

“It’s already very efficient and the potential 5% improvement doesn’t justify the cost of adding a smart machine or artificial intelligence element that has to analyse data from various machines from scratch, look for abnormal trends, determine the reason for these trends and then take corrective action.”

Naidoo says when it comes to predicting what could go wrong with a machine, the

smart solution would be to mine the rich quality data that Jendamar has already been gathering for the past 20 years.

“We’re confident that there is a relationship between the machine downtime and the quality data.

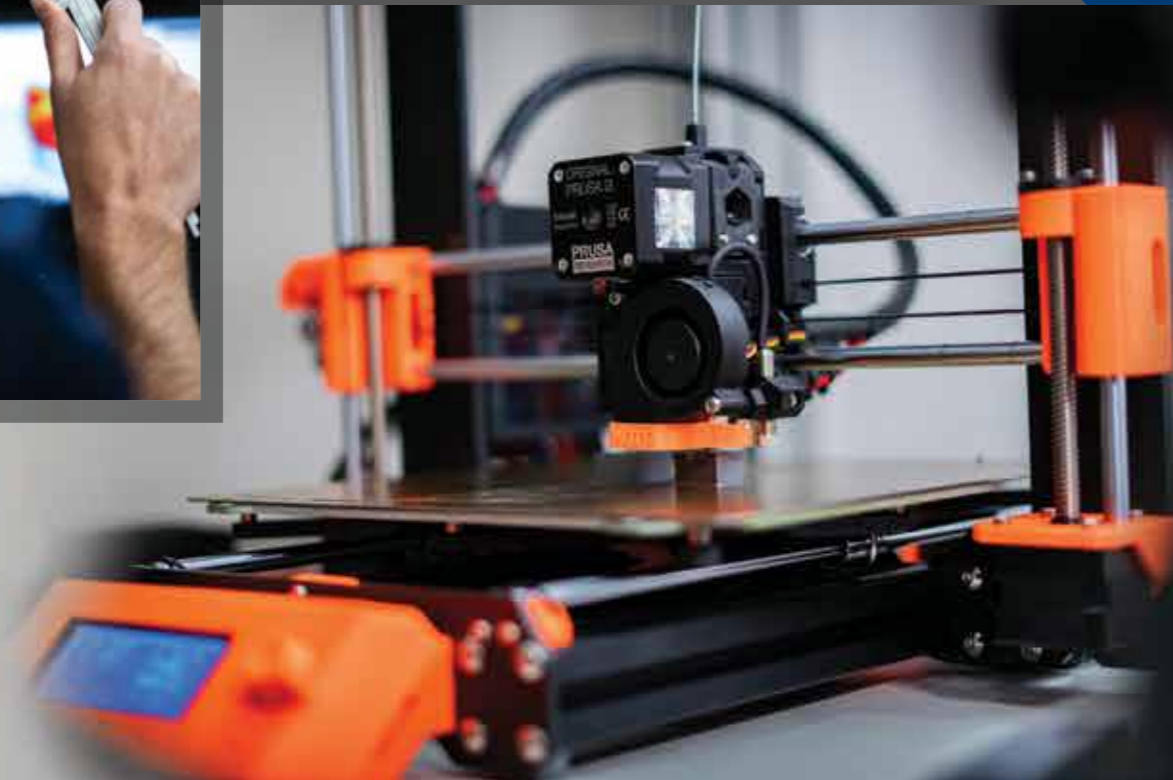
“When a machine does go down, it can generally be narrowed down to a handful of possible causes. Because we already know the outcome, the reverse analysis is much simpler, making downtime easier to predict – without huge cost implications.”





## ADDITIVE MANUFACTURING

More commonly known as 3D printing, additive manufacturing is gaining momentum in the quest for lightweight parts and minimum material waste.



## AUGMENTED REALITY

Augmented reality (AR), as the name suggests, uses technology to augment or add to a user's experience by superimposing computer-generated images, text and sounds over a real-world environment.



Instead of machining away metal to fashion a part, additive manufacturing builds it up from scratch, using only the material needed.

"The other big advantage is the idea of topology optimisation – redesigning a part to make it lighter in weight," says Yanesh Naidoo.

This, Naidoo says, allows for complex lattice-like design, not unlike the bone structure of birds, which is strong but could reduce weight by up to 70%.

"This is a big goal for the automotive industry because it would make cars

easier to run on smaller engines. Our assembly machines would in turn require less powerful motors, which would increase their longevity and reduce costs."

While metal 3D industrial printers remain prohibitively expensive, Jendamark is exploring using industrial robots with MIG weld guns to build up parts.

"The structural integrity still needs to be tested but if it proves successful, a designer could print raw materials overnight and put them into the machine shop the next day," says Naidoo, adding

that it could shortcut the material purchasing process by weeks.

Jendamark's 3D printer is used to print plastic components, which are especially useful in the development phase, giving designers a feel for the real thing. The initial testing of lines is also done using these.

"Print-on-demand spares for plastic components, such as air vents, are now accepted in the automotive industry worldwide – especially for older model vehicles, where it is no longer cost-effective to produce and store large volumes that may never be used."

AR creates an immersive and interactive experience for the user, which makes it particularly suitable for assisting operators and maintenance teams on production lines.

***The operator sees the step-by-step process as a visual overlay on the real-life workstation through the lens of the glasses.***

Jendamark currently uses AR hardware in the form of Vuzix smart glasses as a bolt-on to its WorkStation app to improve operator efficiency. Instead of consulting a screen or trying to remember each

assembly process required, the operator sees the step-by-step process as a visual overlay on the real life workstation through the lens of the glasses.

AR also has a role in quality control by highlighting those parts that need to be visually inspected by the operator once assembled. Once everything is in order, the operator can capture the image, which may be logged as an element in the product traceability chain.

Aside from operator guidance, the glasses also help maintenance workers to access remote support more effectively. Once logged on to

the software, the support provider – who may even be on the other side of the world – can see exactly what the maintenance worker sees.

This enables him to guide the on-site worker verbally through the repair process via Skype and by "drawing" helpful sketches, arrows and circles, which are superimposed on the maintenance person's view of the problem area.

Jendamark's aim is to develop the AR software that supports all of these functions and plugs seamlessly into its Odin software platform.





## INTERNET OF THINGS

The Internet of Things (IoT) describes a network of machines, devices and other items that have built-in connectivity, electronics, software or sensors that allow them to share data and improve efficiency for humans interacting with them.



While the idea of a “smart home” or “smart business” may seem far in the future, current estimates suggest that there could be around 30 billion connected devices worldwide by 2020.

For Jendamar, the first application of IoT principles will soon be demonstrated with the addition of a documentation app\* to its Odin software platform.

According to Yanesh Naidoo, it is standard practice for the company to deliver all the printed manuals and necessary documentation for a new machine or line as part of the handover process to a customer.

Unfortunately, those documents are often misplaced over the years and remain unread until something goes wrong, he says.

“Our solution is to place a 2D matrix or QR code on the main sub-assembly of every machine we make. Then, instead of trying to find the manual, the maintenance technician simply scans the code using the app, which will take him to a link with the correct documentation for that particular sub-assembly.”

Taking this one step further, the IoT could be used to collect data such as the part numbers on a customer’s machine as well as the replacement parts available in his or her storeroom. This information would be available at a glance via the app, thus reducing machine downtime while fixing the problem.

\* Currently in development. Available for Android devices from the Google Play store.



## VIRTUAL REALITY

Jendamar’s virtual reality room allows designers and customers to explore the possibilities of a new production line in three-dimensional reality via an interactive, computer-generated experience.



The introduction of virtual reality (VR) has had tangible, real world benefits for Jendamar customers by enhancing the design review process.

***This simple step often highlights potential flaws that would not be apparent during a normal design review.***

First, the design team makes the complete production line in VR and a member dons the glasses for a walk-through of the line. This simple step often highlights potential flaws that would not be apparent during a normal design review.

“It’s about seeing the design with fresh eyes,” says Yanesh Naidoo. “For example, from a maintenance perspective, can the motor be easily replaced or is it stuck underneath in an unreachable back corner? And, as the operator, can one easily reach all the components, and does it really take the time predicted?”

Naidoo says VR is ideal for ironing out any kinks before the design is handed over to manufacturing and for clients to get a better understanding of its workings before sign-off.

“While the line is in production, VR could also be used to train teams of operators on the virtual version, so that they are ready to hit the ground running when commissioning is complete.”





ABOVE: Pushing the envelope with Jendamark's Industry 4.0 solutions are team members (from left) Andries van Zyl, Mark Inman, Jaco Heunis, Yanesh Naidoo, Allan van den Berg and Greg Perelson.

### INTO THE FUTURE


For now, Jendamark is focusing on the first six components of its Industry 4.0 definition, especially the Odin platform.

"Understanding the new approach to software development was initially quite challenging, but the developers worked hard to understand the requirements, present ideas and share solutions," says Yanesh Naidoo.

Looking ahead, Jendamark will explore opportunities to use collaborative robots in highly specialised projects. However, the slow movement that makes them safe to work with humans also makes them inefficient and increases cost.

Also on Jendamark's to-do list is exploring the possibilities for secure machine-to-machine communication via cryptography-based blockchains.

"The idea is that the internet will one day comprise decentralised networks instead of one centralised hub. A blockchain is a database that is shared across one of these networks, with encrypted records that can only be read by the machines in that network," says Naidoo.

"While we aren't there yet, Industry 4.0 is about the future, so we need to keep our eye on all possibilities." 



***"While we aren't there yet, Industry 4.0 is about the future, so we need to keep our eye on all future possibilities."***

LEFT: The Jendamark Techcellency Odin team are (from left) Himanshu Jadhav, Shashikant Chaudhari, Sachin Bhosale, Prajwal Kammar and Prasad Halingale.



# FUTURE READY

On August 29, Jendemark Techcellency inaugurated its new facility in Pune, India. More than 300 guests and employees were invited to tour the building and experience JMKT's high-tech expansion.

The facility houses a new 15 000-square-foot assembly shop, with space for the massive five-axis CNC machine, and storeroom. Adjoining it are three floors of purpose-designed office space. By grouping key departments together according to project flow, closer interactions are fostered and efficiencies improved.

**SECOND FLOOR:**

**Sales office:** This is the first point of contact with customers. In the initial stages, the sales and design teams work together to finalise the order. Any changes are communicated to the customer by the sales representative.

**Design office:** Side-by-side computers allow designers to monitor and check each other's designs. Because of the highly confidential nature of the designs, the office has biometric access control.

**FIRST FLOOR:**

**Projects purchase and controls department:** Once the order is finalised, the project is handed over to the project manager, who engages this department to purchase the bought-outs and raw materials for the manufacturing and controls department to carry out the job.

**Boardroom:** The 20-seater boardroom boasts high-end communication technology for liaising with international clients.

**GROUND FLOOR:**

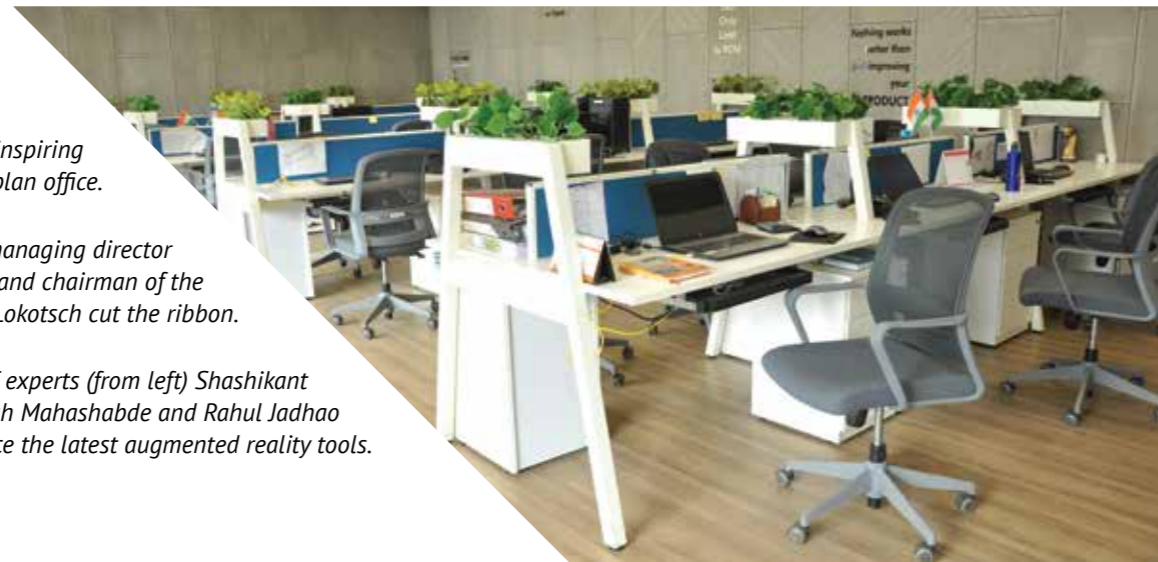
**Eepos:** A separate entity for Eepos Aluminium Cranes includes a display room and warehouse with state-of-the-art cutting machine.

**Meeting rooms:** A pair of meeting rooms are ready to welcome visitors.



Guests in the new assembly facility.

LEFT: The inspiring new open-plan office.



MIDDLE: JMKT managing director Nimesh Desai (left) and chairman of the board Siegfried Lokotsch cut the ribbon.



RIGHT: JMKT experts (from left) Shashikant Chaudhari, Girish Mahashabde and Rahul Jadhao let guests experience the latest augmented reality tools.





# THE DIFFERENCE

Jendamarck continues to push the boundaries of possibility with its longest and most automated powertrain production line so far. This differential assembly line is also the largest single-order project ever to be completed by the Group.



**D**esigned to assemble the GM-A2xx platform differentials for General Motors, the line has been installed for ZF at their Gainesville facility in Georgia in the United States.

Jendamarck's head of powertrain assembly, Johan Labuschagne, says the project turnaround time was 12 months, as the entire line had to be designed from scratch.

"No existing machine designs could work for this specific product, except our pinion nut tightening machine, which also had to be modified," says Labuschagne, adding that it was the first full differential assembly line supplied by Jendamarck in 15 years.

"Our R&D experts guided the design team and from there we relied on our vast experience with manufacturing, assembly and commissioning to bring this production line to life."

It was also the first line to use the latest version of Jendamarck's production and line management software, Odin. This was particularly important as the assembly process involves gauging to select the right parts for optimum performance of the differential unit, and testing – including a backlash measurement and leak testing – to verify that the assembly process was done correctly.

"Its value has been proven, and we have received an order for another production line using Odin from the same customer," says Labuschagne.

"We faced some serious hurdles, but the team put in the necessary research and hours to get the project over the finish line. Everyone can feel proud that we delivered a good product and won the customer's confidence for future projects."

## The Big Numbers

TOTAL FLOOR AREA:  
50m x 22m

TOTAL CONVEYOR LENGTH:  
130m

MACHINE FOOTPRINT:  
46m

DESIGN:  
Loop conveyor system

WORKING STATIONS:  
18

OPERATORS:  
8

ROBOTS:  
5 (plus 1 installed by customer)

## Tech power

This year, Jendamarck Techcellency (JMKT) delivered a first for India and its biggest order to date – an innovative engine assembly line that uses augmented reality to guide its operators.

In May, this line was installed in the Skoda plant in Aurangabad, where it is being used to assemble four-cylinder R4 and six-cylinder V6 engines.

The €2.5 million production line, which took 10 months to complete, has successfully produced the pilot series of engines and is currently gearing up for a ramp up in volumes.

JMKT operations director Himanshu Jadhav says the Industry 4.0-driven project was not just a first for the JMKT team but for the customer too.

"As a turnkey project, it was extremely complex and many of the aspects had never been done before. Our engineers spent a considerable amount of time understanding the requirements, coming up with innovative solutions and making it work.

"This line has several unique solutions – from a mechanical, electrical and IT point of view – which showcase our capabilities as a leading tech-oriented company," says Jadhav.

First among these is the use of augmented reality glasses in the production environment to guide the operator through the assembly process.

There is also the extensive use of tools and gauges that transfer critical production data via a wireless network.



"All of these Industry 4.0 solutions are based on our Odin software platform," says Jadhav.

"We also gave our customers a realistic feel for the line and a chance to suggest improvements – before a single part was manufactured – using THEIA, our virtual reality solution."

The complete line entailed the design and manufacture of more than 300 items required for the assembly of the engine

in the most cost-effective way, without compromising on quality.

Teams from South Africa, Germany and India were involved in every aspect of the project from design to execution.

"The whole global team put in long, hard hours but our passion to deliver and an uncompromising approach towards results saw us execute this project to the best of our abilities and ensure customer satisfaction."





# Pursuing PERFECTION

The constant exchange of ideas and skills ensures that all Jendamark products worldwide meet the same exacting quality standards, whether they are manufactured in South Africa or India.



This pursuit of perfection leads to improved global customer satisfaction which is what Jendamark is all about, says manufacturing director Graeme van Zyl, who is an active driver of the exchange programme between the Port Elizabeth and Pune plants.

"Our primary objective was to set up a manufacturing arm in India, which we did a few years ago," says Van Zyl.

"From there, we upped the ante to produce two symbiotic automation technologies."

"While the plant in PE has a lot more experience in years and exposure, we have fast-tracked the exchange of ideas and manufacturing practices between India and South Africa to improve our global service."

*"If a customer can save money by placing an order in India, then that is where the order should be placed, regardless of its final destination."*

#### GLOBAL TEAM

To achieve this, Van Zyl says that Jendamark Techcellency in Pune is run in exactly the same way as the plant which was established in Port Elizabeth in 1989. "Literally, you could take staff members from the Pune plant, place them in PE and they would know what to do."

Another way that this is achieved is through the continual exchange of personnel, with engineers from South Africa going to Pune to share their expertise and engineers from India being sent to Port Elizabeth for on-the-job training.

This has special importance in the design process, with Van Zyl, who visits the Pune plant every two months, stressing that a successful design leads to a successful end product.

"We target design engineers in Pune, train them in Port Elizabeth and then send them back to impart the knowledge gained to others."

"Design sets the direction of the product. A bad design results in there being too many obstacles to endure throughout the processes, hence a good design is of vital importance."

#### QUALITY STANDARD

Van Zyl says Jendamark is evolving all the time and coming up with new ideas to meet ever-changing customer requirements.

"We use the latest technology to ensure that our plants are on the same level globally. The mindset, principles and values are the same throughout."

"Our primary aim is that there should be no customer bias between two companies. Customers must not say that they prefer to deal with Pune or Port Elizabeth. Cost, time and quality should dictate the project."

"If a customer can save money by placing an order in India, then that is where the order should be placed, regardless of its final destination."


#### PROJECT TRACKING

Another vital part of the exchange is the new project tracking software that Jendamark has been using in SA.

"Because of its complexities and dynamics, this software was new to Pune staff. We don't just look at engineering, there's also IT and manufacturing. We are always looking to improve methods of tracking and control," says Van Zyl.

"Through our own Excel documents, we keep abreast of what is happening and when it is happening. It also allows for us to monitor progress at the Pune plant and step in with advice where necessary."

Another aspect of the exchange programme is the friendly rivalry which has sprung up between the two plants, with each continuously striving to be better than the other.

"This is not a bad thing," Van Zyl says. "It is a factor in how 'techcellence' is achieved." 



# MAN OF IRON

Jendamark-sponsored Ironman African champion Kyle Buckingham shares the highs and lows of being a professional triathlete and what makes him take on these super-human feats of endurance.



@koruptvision

**Q: You and Jendamark share the same home town of Port Elizabeth. What makes the city such a great training ground for you?**

A: There is a lot of variety on my bike rides; I can practise on the Ironman Africa race course or head outside the city to tackle some hills. There is also great running where I live in Sardinia Bay. Plus, there's a handful of quality pools to choose from for my swim and, of course, the Indian Ocean.

**Q: What drives you to push the limits of your physical endurance in not one but three disciplines?**

A: I love the challenge. I didn't get the opportunity to try out any other sport beside Ironman when I was younger. I came across it by accident and found I was pretty good at it after finishing my first race.

**Q: What has Jendamark's sponsorship enabled you to do in your career?**

A: My sponsorship with Jendamark has allowed me to train full time as a professional triathlete and race not only in South Africa but abroad too.

**Q: What does your average training day look like?**

A: On a typical day, I will train for at least six to eight hours on all three disciplines. I start with my bike ride – anywhere between two and seven hours. Then I head to the pool at lunchtime and swim four to five kilometres. After lunch I will have an afternoon sleep to recover before finishing off my day with a 45 to 90-minute run in the evening.

**Q: How do you fuel your training? What does your daily diet look like?**

A: I have pretty normal meals, consisting mainly of good proteins, high fats and lower carbs. When I train, I use energy drinks to help with electrolyte replacement and calories. I burn

between 3 000 and 6 000 calories per day. I also take a recovery shake to add a larger number of calories into my diet than food can.

**Q: How many pairs of running shoes do you wear out in a year?**

A: I go through roughly five pairs of running shoes for training and I use a brand-new pair of racing shoes for every race. So that's about another four or five pairs of racers.

**“I just kept thinking, ‘I feel incredible. I feel like I am walking on water.’”**

**Q: When you're struggling on the run/swim/cycle, how do you motivate yourself? What do you think about during those long hours?**

A: I think about winning my next event – it is always on my mind. When racing, I think about those long hard days in training that I do. I also think to myself that, when my race career is over, I want to look back and say that I gave my best effort – and not that I should have trained harder!

**Q: Was winning the Ironman Africa Championship in your hometown the high point of your career so far?**

A: Absolutely, YES!

**Q: What's your favourite memory from the day?**

A: My favourite memory is running past my family on Marine Drive. They were all screaming for me and telling me I look amazing, and I just kept thinking, “I feel incredible. I feel like I am walking on water.”


**Q: What are some other career highlights?**

A: I will never forget the feeling of winning my first-ever Ironman at Ironman Lake Placid in 2014 in my first year as a pro. Another highlight was taking the overall course record at Ironman World Championships in Kona as an age-grouper in 2013 – and still holding that record today.

**Q: What has been one of your serious lowlights? And how did you move past it?**

A: In October 2017, I had a very upsetting race at the Ironman World Championships in Hawaii. I was in the absolute best shape and form of my life. Predictions and numbers were showing that I should be in a great position to finish top 10 overall. Then my race didn't go as planned. I had a mechanical on the bike and was the last male pro to finish that leg. Looking back, I might have also picked up a virus that I didn't know I had. On the morning of the race I could not stop sweating, which, looking back, should have been a red flag for me. The night after the race I was extremely ill and almost couldn't catch my return flight home. I was sick for an entire month and slept day and night for the first five days. To get over the disappointment, I had to remind myself why I chose this sport and of the love I have for it. I also had to remind myself that I have a lot of people who support me and surround me with so much positivity. This encouraged me to get my fight back and start my training again.

**Q: What are your plans and major goals for 2019?**

A: My number one goal is to defend my title at Ironman African Champs in April and also to improve my position at the Ironman World Champs in Hawaii. 



# Joined together

Since introducing electronic tightening and resistance welding systems to the South African automotive industry more than 20 years ago, Jendamarck and Bosch Rexroth (formerly Bosch) have offered industry-leading solutions to customers worldwide.

Today, Jendamarck continues to be the sole agent for Rexroth tightening tools and weld timers in South Africa, supporting and selling these world-class products to customers within and beyond the country's borders.

According to Bosch Rexroth's global sales manager for joining technologies, Thilo Vogler, the partnership endures because of the deep technical understanding of the products and market that both companies share.

"With Jendamarck as our joining technology partner and machine builder, we can offer a great service to our end customers. Jendamarck can offer complete assembly solutions to customers in South Africa and beyond. This solution-providing approach is very valuable for us," he says.

Jendamarck's sales and design director, Yanesh Naidoo, agrees.

"Jendamarck's can-do approach uses these products to create a cost-effective and innovative solution for an end-customer anywhere in the world."

Most recently, Jendamarck used the most advanced Bosch Rexroth weld timer available in an assembly facility for the new BMW X3 in South Africa and will be introducing the next-generation version for an upcoming Mercedes Benz C-Class project.

Jendamarck is also part of the tightening product partnership between Bosch Rexroth and Daimler, which also includes their East London plant. Joint tightening solutions are provided to Daimler locations even beyond South Africa.

"We are continuously taking technology even further to ensure that the stringent quality requirements from the OEMs are met during the assembly process," says Naidoo.

As far as Industry 4.0 is concerned, he says the next step is the integration of Bosch Rexroth equipment with Jendamarck's own Odin software platform.

"This is a massive opportunity that puts us on par with the best worldwide and ahead of the rest. It allows us to offer a complete end-to-end solution for a customer."

Integrating the tools into the platform will allow Jendamarck to offer additional services such as predictive maintenance and diagnostics. By using Odin to analyse production data and trends, customers will have access to trend reports and graphs outlining the tightening process, which will help them to improve efficiency and deal with problems before they occur.

**rexroth**  
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# NEW Documentation App

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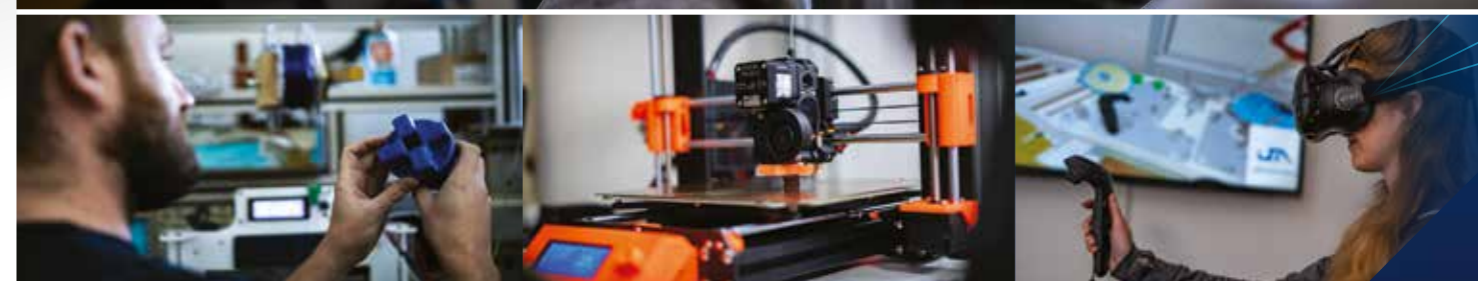
Currently under development, the new Jendamarck documentation app will allow you to:

- access all the online documentation for your machines or assembly facilities
- cut out the hunt for printed manuals and minimise machine downtime
- navigate quickly and find what you need

Simply open the app and scan the machine's 2D matrix or barcode to get straight to your source material.



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