YASKAWA

TECHNICAL NEWSLETTER

YASKAWA INDIA PVT. LTD.
ANNUAL NEWSLETTER

Volume #01 April 2023

Robotic Division - System Engineering & After-Sales Support - India | Updates on New Application Developments and Technical Achievements

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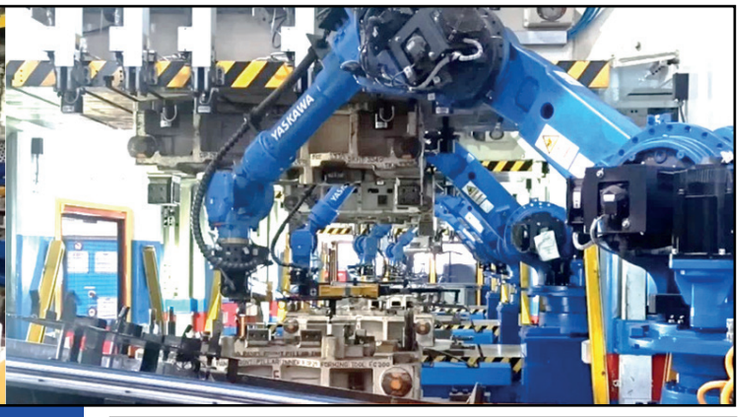
Commissioning

Robotic Press Handling Project

~ Virat Mahajan



YASKAWA India Pvt. Ltd. (Robotic Division) has successfully commissioned a high-speed Robotic automated Tandem press line of 1250T in SKH Y-TECH Gujarat, India, in the automobile region. This state-of-the-art production line is designed to produce various stamping parts used in the automobile industry. With a production speed of upto 13.5 SPM, which is the highest achieved among the previous installations, this line is equipped with 6 Nos. Yaskawa Motoman PH130F Robots. It is the third installation for the same customer, who benefits from high-volume production without requiring any manpower intervention between the press. The line can produce approximately 15,000 to 17,000 parts in a single day with proper safety measures in place between the Robots and Press.

The line includes automatic de-stacking of metal sheets, as well as a centring system that provides accuracy in placing of the blanks on the die. The robots have automatic tool change capability which provide the benefits of time saving for upcoming productions. The entire line is controlled by a centralized PLC and HMI system, which simplifies operation and reduces line downtime. Additionally, the line features an auto double-sheet detection mechanism that identifies and prevents double-sheet placement on the die.

COO's Message

COO's Message for the Team

"At YASKAWA India, we consider Service as our top priority. We prioritize service excellence and ensure that our customers receive the best Engineering & After-sales support 24x7, regardless of their location.

Your unwavering dedication in providing exceptional service has been instrumental in making us an industry leader. With installations across the country, your commitment to service & engineering excellence distinguishes us from our competitors.

Thank you for being the backbone of our organization."

COO
Ajay Gurjar

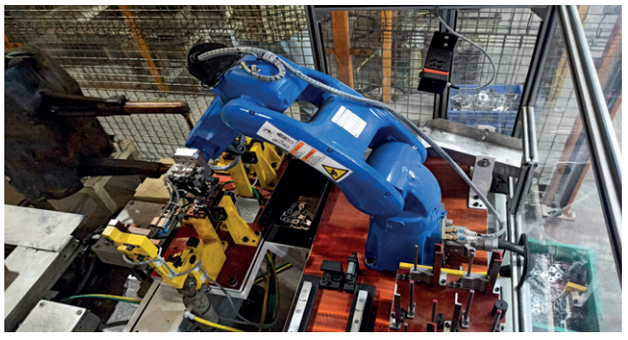
Commissioning

Robotic Handling + Welding Project

~ Virat Mahajan

YASKAWA India Pvt. Ltd. (Robotic Division) has successfully commissioned a Robotic Handling and Spot-Welding project at G-TEKT India Tapukara, Rajasthan, in the automobile region. This project is a combination of Part handling and Spot-welding applications. The project has consisted of the YASKAWA GP8 Robot with vacuum gripper and two-jaw gripper, which is used for pick-and-place of the child parts and welded component once a 2D inspection camera check the spot weld impression and thread availability in the welded component.

During operation, the GP8 Robot picks the parts from the 40 nos. stacks of child parts and places them on the spot-welding jig. The robot programming includes a searching function for picking of the child parts from various stacks, switching of the stacks is done by the auto-shifting function in the robot programming. By using this handling system, customer is achieving high production volume with an auto-inspection system. This is a completely operator-free system, as the robot handles 100% of the parts loading/unloading and quality inspection is also done by the inspection camera.



Commissioning

Robotic Ultrasonic Welding Project

~ Virat Mahajan

YASKAWA India Pvt. Ltd. (Robotic Division) has successfully commissioned a Robotic ultrasonic welding project at Park Non Woven, Panipat, in the automobile region. This project involved the customer's specific requirement for joining fabric (cloth) with a plastic part using a robotic ultrasonic welding setup. The customer was unable to achieve high-speed production on curved surfaces with manual or SPM welding methods. Therefore, YASKAWA India provided a complete Robotic cell for ultrasonic welding with 2 Nos. YASKAWA GP25 Robots.

This was a unique requirement that posed some challenges during commissioning, such as robot programming and maintaining quality on high curved surfaces. However, by brainstorming and calculating weld parameters, we have successfully commissioned the project and handed over to the customer with high-quality and high-speed production. Our experience in ultrasonic welding on fabric was crucial to the success of this project.

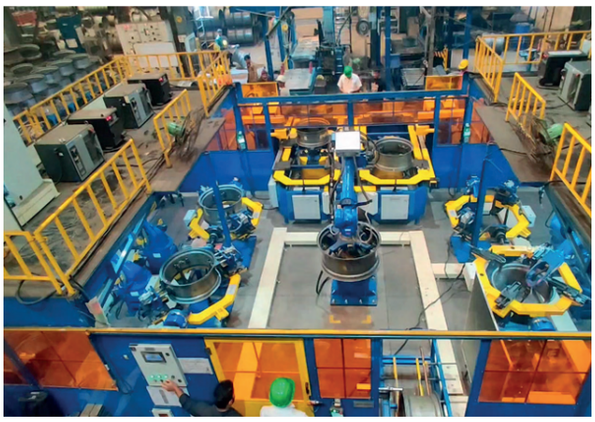
Commissioning

Wheel Handling & Welding

~ Deepak PA

Yaskawa India has installed a complete turnkey solution for wheel rim welding at Carrier Wheel. This unique system is designed with our robust Arc welding robot AR1440 and handling robot GP180. We have designed and installed custom fixtures and special purpose stations (buffing) for the system.

The AR1440, along with the Yaskawa X350 welding power source driven robotic welding system, provides a high level of accuracy and consistency. YASKAWA designed fixtures enable the system to perform welding tasks with extreme precision, ensuring the welds are uniform and of high quality. Moreover, the removal of the manual welding process has increased productivity and efficiency. The handling system comprises a vision camera system to detect the wheel's orientation and position, while the position feedback is used to pick up and move the rim in multiple stages of operation. Overall, this turnkey solution for wheel rim welding offers excellent precision, quality, and productivity.



Commissioning

Muffler Welding System

~ Deepak PA

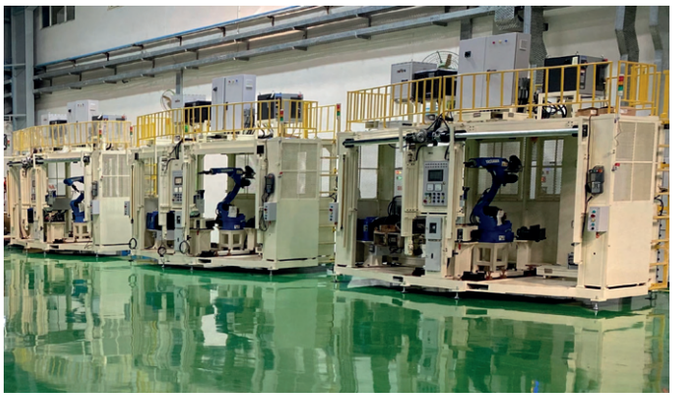
YASKAWA India has provided a versatile and complete solution for muffler welding in the 2-wheeler segment by combining AR1440 and AR2010 Robots with Yaskawa positioners (PS500) to support complex synchro welding profiles at Munjal Auto. The fixtures are expertly designed and offer several advantages over traditional welding methods. First, the system is much faster, enabling manufacturers to produce mufflers more quickly and efficiently. Second, it is more precise, resulting in higher quality welds that are less likely to fail. Finally, it is also more cost-effective, as it reduces the need for manual labour and can operate continuously without fatigue.

Commissioning

Arc Welding Cell & Fixtures Line

~ Deepak PA

YASKAWA India has supplied a complete line of cell & fixtures for a new flagship model of scooter at Suzuki Motor Cycle. These specialized tools are used in conjunction with industrial robots to hold and position parts during the welding process. By using the same welding fixtures, the accuracy and consistency of the welding process are greatly improved, resulting in higher-quality welds and a more efficient production line. In addition to the fixtures, Yaskawa has also supplied a complete welding line of robotic cells specifically designed for this purpose. This robust system is capable of handling multiple models, including half frames and swing arm frames for the two-wheeler industry.



Commissioning

Spot Welding Robot Cell & Arc Welding Cell

~ Deepak PA

YASKAWA India has successfully installed two Spot welding cells along with one Arc welding cell at BESTEX. These robotic cells by Yaskawa are specifically designed to execute tasks with high speed and accuracy, leading to reduced cycle times and increased throughput. This not only enhances productivity but also cuts down on labor costs. Yaskawa's robotic cells can be configured to perform a wide range of tasks and can be tailored to cater to the specific requirements of each customer's manufacturing process. As a result, they offer greater flexibility and adaptability to cope with evolving production demands.

New Development

PS500D - Non -Synchro Positioner

~ Himanshu Sharma & Atul UK

YASKAWA India has developed a low-cost non-synchro positioner that allows for direct jogging with a teach pendant, as well as direct control through a robot and PLC. This product features an easy setup procedure and is battery less, which makes maintenance costs low.

Programming the positioner is made easy with the help of the teach pendant, and there is no limit on the number of teaching positions. It is compact in design & amplifier unit can easily be integrate with the controller unit.

Application Development

Fast Ethernet Server

~ Himanshu Sharma

YASKAWA's Fast Ethernet Server is an innovative feature that allows users to read/write files and variables, among other functions.

At the request of a customer for their anode cleaning process, we utilized this function with the Python Fast Ethernet Server library and a Python script. We were able to read data points from a text file generated by a camera and manipulate the position variables in accordance with the X, Y, and Z co-ordinates. On the robot side, we traversed the position variables and utilized the variables to control the robot.

Application Development

3D Vision Using Motoplus

~ Himanshu Sharma

YASKAWA India has developed a turnkey solution for picking up items using 3D points provided by a 3D camera to pick up objects from any position.

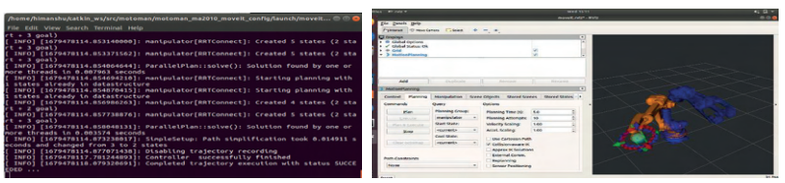
The camera captures an image and generates X, Y, and Z points, which are then transmitted to the robot controller via TCP/IP. MotoPlus, inside the controller, takes these points and creates a queue sequence based on their arrival.

The points are popped out of the queue after every trigger generated by the robot to complete the cycle. The points are then transferred to the position variable, and the robot traverses on it.

Application Development

3D Vision Using Motoplus

~ Himanshu Sharma



Robotics Operating System (ROS) has now become a vast field of robotics. YASKAWA India has supported its customers in path planning of robots using ROS. The software is developed and executed on a local PC through which commands and paths are sent to the robot. Data is transferred from the PC to the robot via Ethernet, and inside the robot controller, the Motoplus file retrieves the data and converts it to a smooth motion of the robot.
MoveIt configuration is utilized for ensuring smooth movement of the robot.

Advance Support

Welding Simulator

YASKAWA India, in collaboration with Soldamatic, has introduced a welding simulator with Yaskawa robots in India. This simulator allows for real-time welding simulations to take place in lieu of actual welding.

Robot Overhauling

MSIL -EPH 4000 - 5 Robots

~ Mohit Siwach & Team- Manesar

YASKAWA India Pvt. Ltd. – Robotic Division, after-sales support team has planned and executed EPH 4000 Robot Overhauling activity for 5 robots at Maruti Suzuki – Passenger vehicle manufacturing plant – Press Shop in the month of Dec 2021 (7 Days), March 2022 (3 Days), and June 2022 (9 Days).

A total of approximately 240 man-days were spent on this activity, with 12 Engineers working per day for a total of 20 days. As part of the overhauling process, all 5 robots had their controller parts, power cables and encoder cables replaced.

Wrist-Unit Overhauling

KIA – MPX 3500 – 19 Robots

~ Jithin Joseph & Team - Bangalore

YASKAWA India Pvt Ltd – Robotic Division after- sales support team planned and executed MPX-3500 robot Wrist-unit Overhauling activity for 19 robots at KIA Motors – Passenger vehicle manufacturing plant – Paint Shop in the month of May 2022.

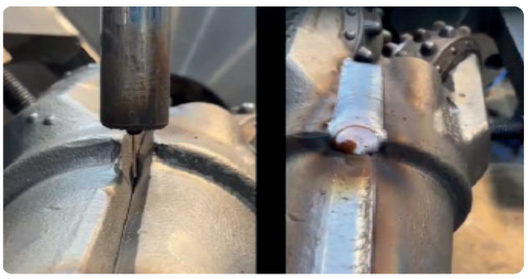
A total of approximately 50 man-days were spent on this activity, with 10 Engineers working per day for a total of 5 days.

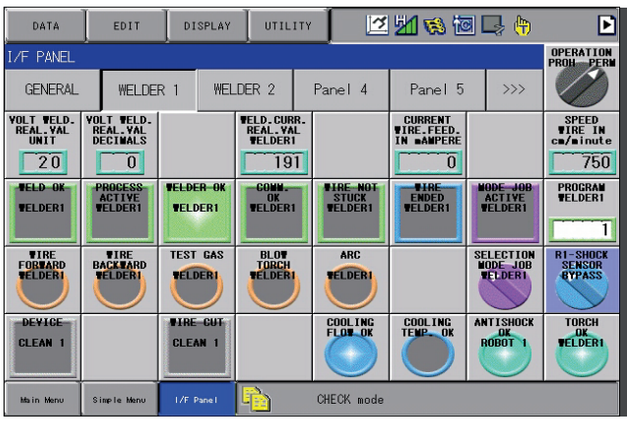
Robot Retrofit

EPIROC – Robot Retrofit

~ Jithin, Sajith, Ajay Kishore

Robotic Welding cells inaugurated at EPIROC by their VP - Jenny Heimersson. This is the first Robotic application installed in EPIROC India. Used for manufacturing mining tools, start search function has been implemented with multiple layer welding options. Welding process goes up to 5 layers.





Interface Panel Function

Virtual Operation Panel

~ Reneesh & Team - Pune

YASKAWA India Pvt Ltd – Robotic Division offered the option to construct a virtual operation panel in the programming pendant without requiring any additional hardware. This feature allows for cost-cutting on systems where a Human Interface Panel (HMI) panel would typically be necessary.

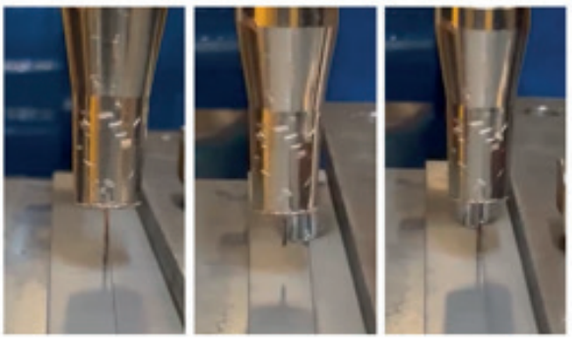
Using software configuration provides flexible support for rapid system changes. Users can construct any operation panel on the pendant display by performing settings on the interface panel setting display. This allows for the integration of frequently used buttons, switches, counters, and lamps into a single panel.

Search Function

START POINT SEARCH FUNCTION USING TOUCH SENSE

~ AS Team

The "Starting Point Detecting Function" detects any deviation in the taught points (such as start point, middle point, and end point) and compensates for each weld line, even if there is a deviation in the taught weld line during the welding process. This function is activated by connecting the starting point detection unit, which operates based on the principle that applying voltage between the welding wire supplied to the welding torch and the welding member (base metal) will decrease the voltage. This function is particularly useful when there is a variation in the workpiece's accuracy or when the welding start point is deviated due to variations in the workpiece setting, among other factors.



Train the Trainer

Customer- Rucha

~ Reneesh & Team- Pune

"Train the Trainer" program was organised at Rucha Engineer's headquarters. They have installed over 100 Yaskawa robots that are being used for various robotic automation applications. Rucha Engineers falls under Tire-1 category and is a prime parts supplier of Bajaj Motorbikes.

AFTER-SALES ANNUAL HIGHLIGHTS

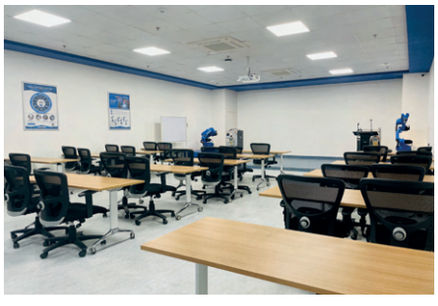
* AMC / PM order: 611 Robots
* Appreciation Letters – 55 Nos.
* WPS Repair– 41 Nos.
* PP Repair– 65 Nos.
* Robot Overhauling & Paint Robot Wrist Unit Overhauling – 49 Nos.
* Promotional Trainings – 52 Nos.
* Paid Trainings– 28 Nos.
* Total ASP calls: 337 Man-days
* Total IMT calls: 334 Man-days
* AS Customer promotional visit – 279 Nos.
* Consumables (Grease Tin) sold – 857 Nos.

Robot Trainings

Programming & Maintenance

~ AS Team






Education is not solely about learning facts; it's also about training the mind to think critically. In the current age of AI and Robotics, it's even more crucial to develop our cognitive abilities to adapt to new technological advancements.

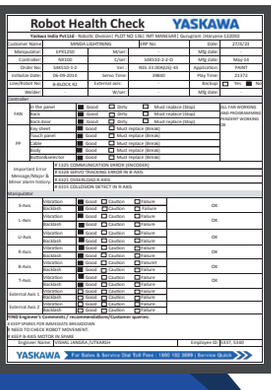
After-sales support team of YASKAWA India Pvt Ltd - Robotic Division has successfully executed a total of 28 Nos. paid and 52 Nos. promotional trainings in FY'22-23, educating over 210 personnel from various companies. Yaskawa India's training program covers programming, operation, and maintenance at both basic and advanced levels. Furthermore, Yaskawa India has advanced training facilities at its Robotics head office and regional offices, which are equipped with training rooms and Robots for effective training.

Quick Health Checkup

Robot Health Check

The after-sales support team of YASKAWA India Pvt Ltd - Robotic Division has successfully planned and executed a quick health check-up activity for 446 robots across various auto/non-auto customers.

Quick health check-up is a free-of-charge activity performed by Yaskawa's service team to support customers. It aims to raise awareness regarding the current health of robots and to provide customers with a health check-up report that outlines any necessary actions to prevent future breakdowns and minimize production losses.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