ALPING ASIA
AUTOMATION

AlpRobTAG-B

AUTOMATIC TAGGING SYSTEM FOR BUNDLED PRODUCTS

AlpRobTAG-B

AUTOMATIC TAGGING SYSTEM FOR BUNDLED PRODUCTS

AlpRobTAG-B is a patented system specifically designed for the purpose of tagging bundled hot or cold- rolled products (bars, angles etc.) using robust, wear-resistant synthetic tags fitted with welding studs that can withstand the challenging conditions of the steel industry. The welding process integrated with a fully automated stud feeding system results in a tagging cycle that is effective and efficient.

OVERVIEW

- Automatic system based on an anthropomorphic robot
- Laser profile sensors for extremely precise tool guidance
- Accurate positioning and secure attachment of the tag using a special stud
- Wear-resistant tagging with steadfast printing
- Customised identification and enhanced product traceability
- Full compliance with operational safety standards
- Increased efficiency and overall productivity
- Minimal maintenance requirements and regular after-sales service

A bundle that has been tagged using the specially designed welding stud.

AlpRobTAG-B employs an advanced vision system that finds the most suitable area of the bundle on which the automatic welding gun will solder the tag with a stud. The stud has been specially designed to firmly secure the tag and to tolerate powerful stresses to minimise its displacement thus avoiding loss of critical information. The innovative tags, which are highly customisable thanks to Data-Matrix, QR Code, bar-code and even plain-text characters, can offer a wide range of information that is easily accessible while supplying full and continuous material traceability, from the receipt of the raw materials to manufacturing and, finally, despatching.

* Approximate quantities.
Actual quantities may be calculated based on the specific dimensions of the tag being used.

- ARTIFICIAL INTELLIGENCE
- MACHINE VISION
- AUTOMATION
- PATENTED (PROPRIETARY)

SYSTEM ARCHITECTURE

AlpRobTAG-B system is contained in a suitable enclosure depending on the plant's operating conditions and in conformity with the safety rules. The robotised cell consists of a 6-axis anthropomorphic robot equipped with a customised welding gun guided by a laser vision system. The specialised pneumatic feeder ensures the continuous supply of the welding studs and, it can reload without disrupting the tagging cycle. The system also features two thermal transfer printers that issue the tags and make sure that the printing stays uninterrupted even in case of maintenance works on one of the units. The dedicated HMI operator panel, designed and developed by Alping Italia technicians, completes the standard setup.
If required, the system can be further integrated with an auxiliary artificial vision system that scans the tag in real time to figure out whether the information was printed correctly, and the tagging cycle completed successfully.

A detail of the patented automatic stud feeder.

A detail of the automatic welding gun and laser vision system.

Exemple of label on profile.

HOW IT WORKS

The robot's integrated vision system first inspects the profile of the bundle by combining laser triangulation with innovative image formation technology to create a detailed 3D image which is then processed through a specially developed vision software. Once the system has found the best point on which to apply the tag it sends the coordinates to the robot. The robot then retrieves the printed tag from one of the thermal transfer printers securing its hold with a suction cup. At the same time the stud feeder ensures that the welding gun is properly loaded and ready to work. The robot will then position itself according to the coordinates supplied and goes ahead with the tagging cycle. If the robotic arm has been equipped with the optional machine vision part, the system can further verify whether the tagging process was successful and, if a problem is found (e.g., incorrect or missing information on the tag), it will take the necessary steps to address the issue.

TECHNICAL SPECIFICATIONS			
Robotic arm	6 axes anthropomorphic	Maximum bundle dimensions	400x200 mm
Operating range	3000 mm	Minimum bundle dimensions	100x96 mm
Robot guide system	Laser vision	Maximum item overhang	50 mm
Tagging cycle	20÷25 s	Welding stud diameter	4 mm
Tag capacity	2000÷2500 pcs*	Stud feeder capacity	4000 pcs
Optional: supplementary machine vision system for the verification of printed information and successful tagging cycle.			

ALPING ASIA

AUTOMATION

Alping Asia Co. Ltd.
info@alpingasia.com
www.alpingasia.com

Alping Italia S.r.l.
Via Alessandro Volta, 18
33050 Pavia di Udine (UD) - Italy
info@alping.it
www.alping.it