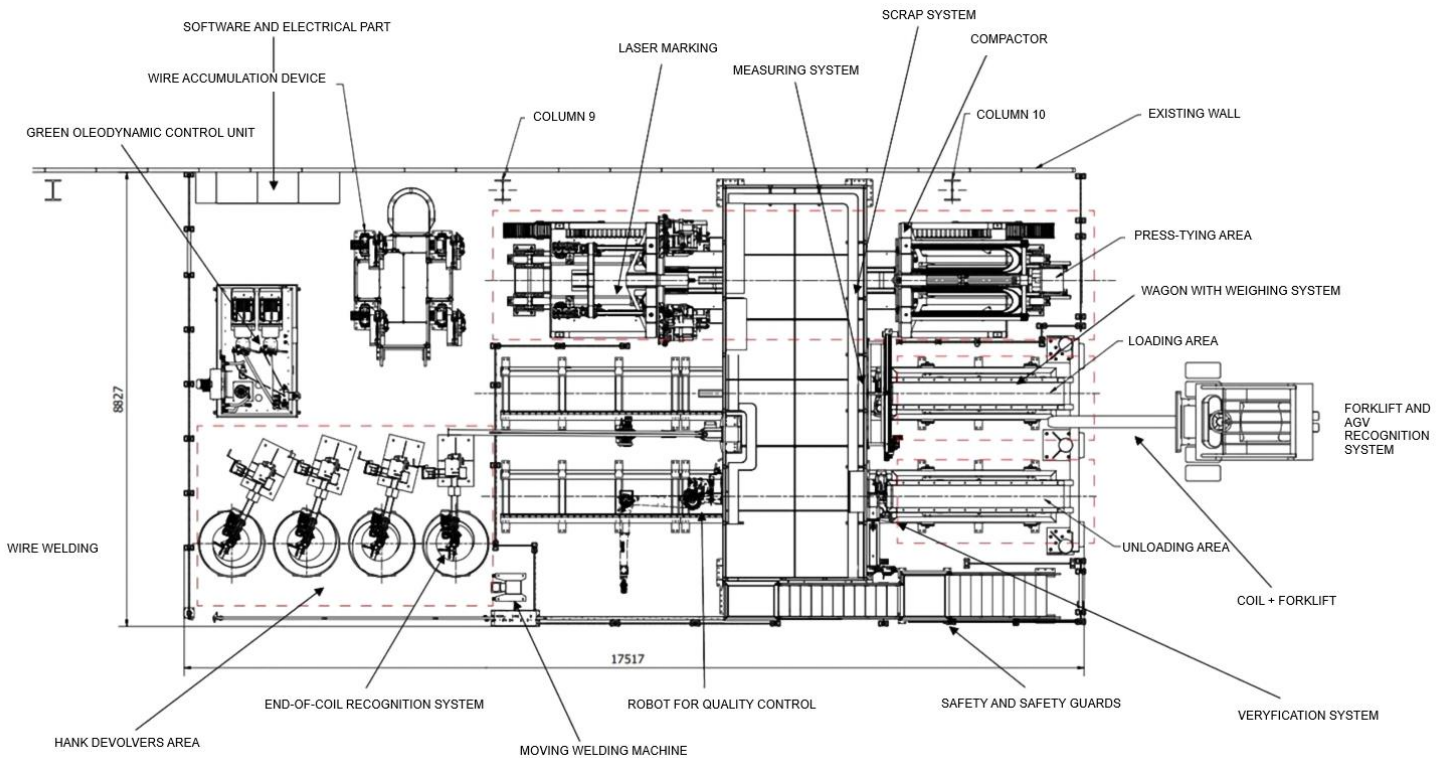


Horizontal Compactor HCM400-4W

The machine has the function of tying multicoils for screw production lines. The coils are loaded via forklift onto the horizontal compactor, compacted and tied. The plant is designed for hanks with wire diameters from 5.5 mm to 55 mm.



The plant includes a coil dimensional control system, a weighing system, and a spray-paint marking system for visual product identification. An automatic traceability system for the welded joint, a laser for marking the binding wire and an exhausted coil recognition system are also integrated.



The work is performed on a turnkey basis, with complete engineering, construction, mechanical and electrical parts; transport, installation, assembly and start-up of the system are also included. AIC also provides the safety part, guaranteeing a CE-marked supply.



AIC also develops fully automatic man-machine interface packages that allow the recognition of the forklift by using RFID, fully integrated within a Safety package that allows both in the loading and unloading phase the complete control of material flows through the operator panel installed inside the forklift. This system allows in the future to manage the storage of coils in an automatic warehouse using AGVs. A robot is planned to be installed with a metal analyzer that will enable integrated quality control processes that will allow high standards to be achieved.

The system allows to improve production performance, in fact a complete loading and unloading cycle reaches 2.5 minutes and allows to process coils from 1 ton up to 5 tons. Specifically, the minimum and maximum external dimensions are 1200 mm and 1600 mm in diameter respectively, and the internal dimensions are 800 mm minimum and 1000 mm maximum.

The wire size the machine can handle starts from 5.5 mm and goes up to 55 mm. The system has an adjustable compaction force of 10 to 40 tons. The compactor uses 7 mm wire to bind the hanks, and the compactor is also equipped with a scrap collection system. The system is fully automatic and ensures easy maintenance and a scratch-free process.



The maintenance of the machine is facilitated by the manual where all necessary and recommended activities are specified, and there is also a dedicated page on the supervisor for each tying head to keep track of the cycles remaining for the replacement of components.



The CPU used in this project is SIEMENS model 1515F-2 PN, which allows SAFETY functionality to be integrated as well. The software with which the machine was programmed is SIEMENS TIA Portal v18, through this software we have programmed both the operating logic of all the machines that make up the plant and the drives that move the said machines.

the CPU has an average cycle time of 15ms. The plant is composed of several machines and therefore the software was also structured by dividing the logics and sequences among the different machines each internally articulated with the AIC standard.



To carry out the automatic cycles a state machine (sequencer) is implemented. The sequencer determines the steps and conditions for transitioning from one step to another in the work cycle. To better understand the management of the software we can look at the HMI which in fact is divided into pages, each for each component and within them we will find consents, states and in some cases the commands.

About Companies:

AIC Group is a technological partner with extensive experience and deep know-how and stands itself as a global power control supplier and system integrator designing, manufacturing, and implementing automation systems, process control, and mechatronic solutions for both greenfield and revamping projects. Focusing on the steel and metals industries for long and flat products, the Group provides cutting-edge technical solutions by handling complex project schedules and thus establishing satisfactory and remarkable partnerships through its 6 international offices.

More than 45 years of modernization for endless reliability processes.

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