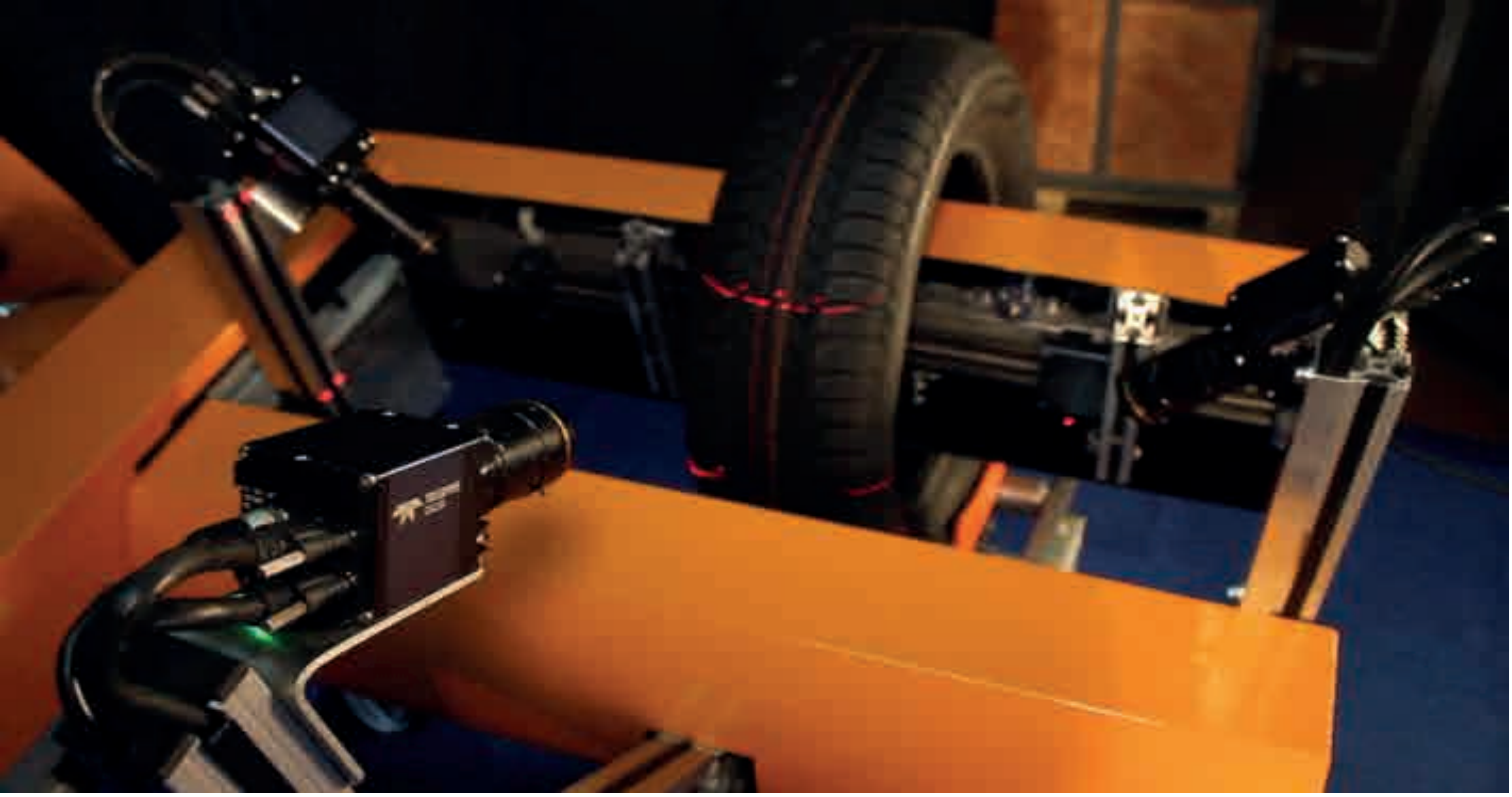

VISION
SYSTEM 3D
TIRE



In the tire production process, one of the most sensitive stages is the control operated on every single item that no defects have occurred during the production process, before it will be sent on the market.
Technologies have integrated methodologies and advanced tools to achieve more efficient and reliable controls, but there are still some parts of this process that are conducted manually by specialized workers. Automate these operations would give a great competitive advantage, considering the impact of the cost of qualified workforce and the need of objectivity in all the control phases.

VISION TIRE SYSTEM 3D

Vision Tire System 3D is an innovative three-dimensional vision system to detect any defect that occurred on the tire. Reconstructing a 3D model of the tire in all its areas and operating specialized algorithms for every different sector, Vision Tire System 3D can detect and classify automatically every kind of defect that can be occured on the tire during the production process (bubble, scratch, bladder, cut, scuffing, foreign body etc), with an high efficiency and a remarkable saving in terms of time and costs.

VISION TIRE SYSTEM 3D

uses the LASER PROFILOMETRY, a technique based on the triangulation between a laser and a camera that let the system have a three-dimensional reconstruction of the whole tire with one of the highest possible resolution in a very short cycle time.

VISION TIRE SYSTEM 3D

has six laser-camera tools that allows the system to inspect all the different areas of the tire. These vision units are mounted on a robotic arm that operates a preset depending on the tire that has to inspect and is able to scan every millimeter of it, in the inside and outside. The software of control takes in charge all the acquired data and detects whenever some defects have occurred during the production process, giving the result in a quasi real time.

TECHNICAL FEATURES

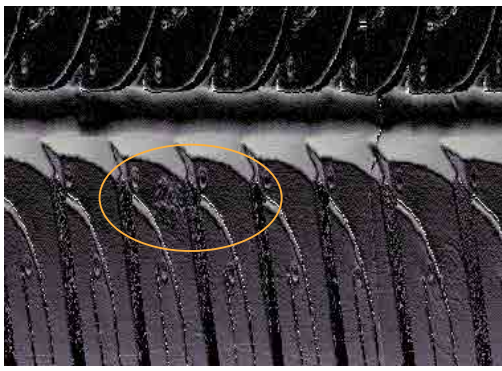
Types of tire	Car
Tire Size	Rim Size: 13 to 18 inch Width: any
Inspected areas of the tire	Inside and Outside
Sequence of tire to be inspected	Any, due to an automatic preset of the positioning and inspection parameters for every different tire typology
Detected typology of defect	Bubble, Scratch, Cut, Hair, Undulations, Protrusion, Cracks, Bulge, Waveness, etc.
Minimum size of the defect	2 mm
Detection Repetibility	100%
Cycle time	30 sec
Control Type	Automatic, with a robotic positioning system, PC elaboration and P.L.C. supervision
Existing line integration	Settable with a digital interface
Farm network integration	Ethernet TCT/IP
Tuning algorithms parameters	Auto tuning based on a sample tire
Analysis technology	Laser profilometry for 3D model acquisition and optimized algorithms for defect detection and classification

SIDEWALL SCRATCH

INSIDE BUBBLE

INSIDE PERIMETRAL CUT

TREAD SCUFFING



BUBBLE ON A PATTERNED INSIDE

STRUCTURAL UNDULATIONS

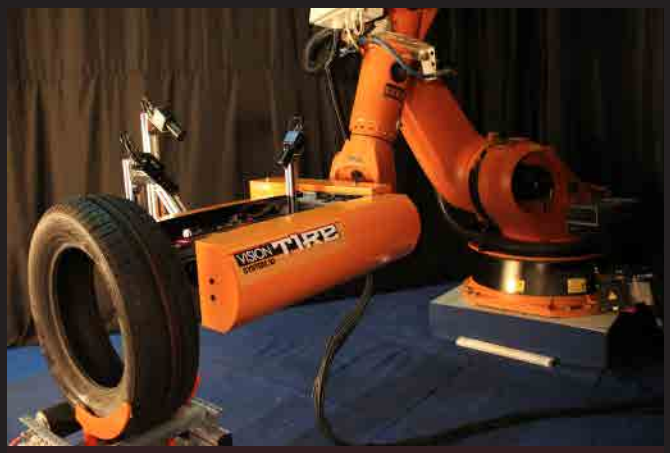
TEKNA
AUTOMAZIONE E CONTROLLO s.r.l.

S.P. 115 km. 1,200
71122 Foggia (Italy)

tel. +39 0881 750570
fax +39 0881 750552

email: tekna@teknautomazione.com
www.teknautomazione.com

www.visiontiresystem.com



graphic designer: AnnaMaria Toma - Pictures are for illustration purposes only

TEKNA

AUTOMAZIONE E CONTROLLO