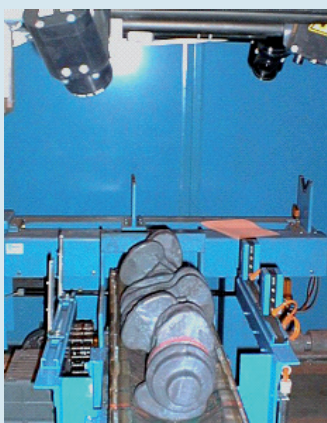


Flexible handling

Automatic 3D position recognition of crankshaft blanks

The task

The position of the central axis of crankshaft blanks must be determined in order to enable them to be picked up automatically by a robot and placed in a defined position for the next manufacturing process. Vitronic's robot vision system VIRO-3D detects the position and crankshaft type on the conveyor belt. Scale layers, burrs, slag, or the tilting of the vertical crankshaft blank are considered and do not affect the systems measured results.



Benefit

VIRO-3D allows a higher automation level of the manufacturing process, ensuring smooth production procedures even under the most unpleasant environmental conditions, without manual intervention or supervision by production personnel. For such applications, 3D position detection achieves availability levels that would be impossible with conventional 2D image processing system.

Implementation

VIRO-3D works on the laser light stripe method. It detects the position and shape of the crankshaft in 3 dimensions by means of 3,000-4,000 light stripes, all of which are taken within 4 seconds. It determines the starting point, overall length and rotation of the part, and transmits this data to the system controls. The system works reliably with a range of over 300 variant crankshaft blank types.

Technical Data

Number sensors:	2 x 1000 Hz light-stripe sensors
Illumination:	Laser light stripe
Scanning width:	400 mm
Resolution:	x: 1,66 mm y: 0,22 mm z: 2,0 mm
Image acquisition:	4 seconds
Total detection time:	6 seconds
Hardware/Interfaces:	Industrial PC RS232 serial interface to robot controls