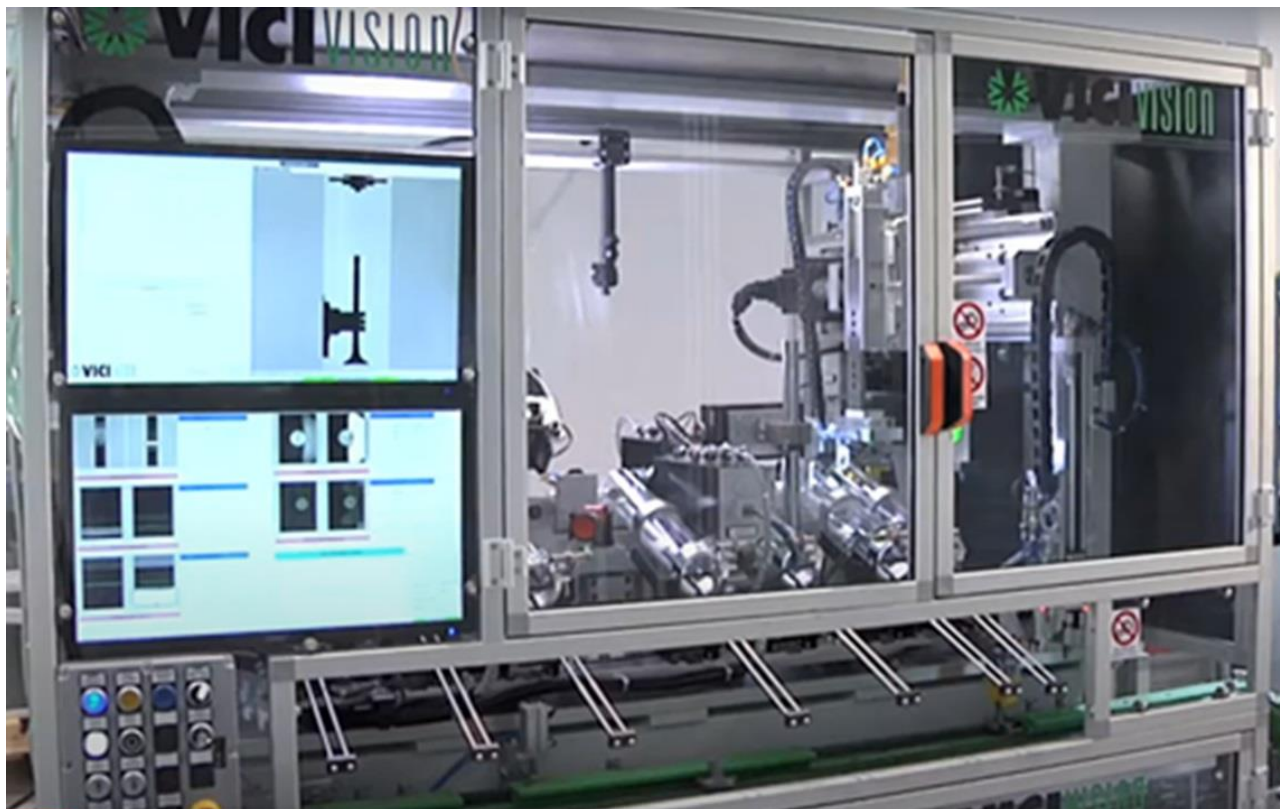


MVI - Machine for valve surfaces and dimensional inspection

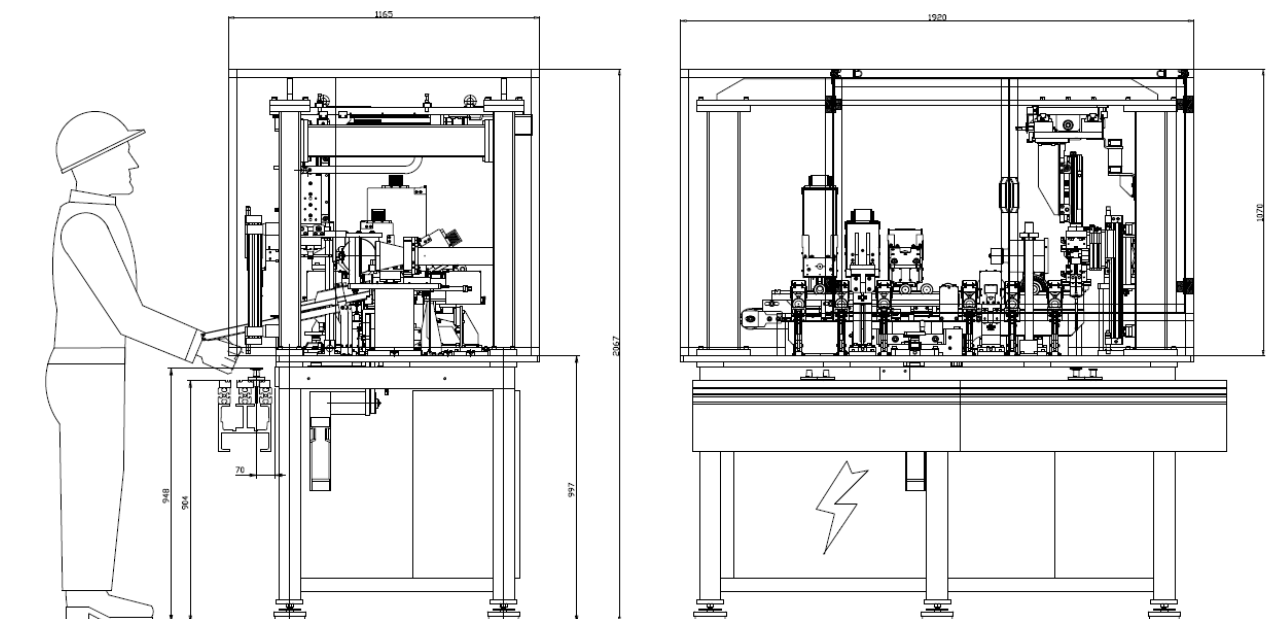


Description

MVI is a quick and compact machine designed to perform static measurements on scanned profiles of cylindrical objects, specifically ICE valves, and their surface inspection. It has been installed in several ICE valves production lines. There are different models to work left to right or right to left, with or without Dimensional Inspection Station, with or without pick-up/off-load valves station to directly exchange valves from/to the conveyor belt used to transport them along the line, and to process Pass or Truck valves with dedicated configuration of the machine (MVI 850Evo and MVI 450T). MVI is based on 6 different stations: Dimensional (optional), Tip, Face, Seat, Rim, Stem Inspection. Each station has a dedicated wasting line directly on the machine. For Dimensional Inspection it is possible to separate NOK valves having Length or Diameter out of tolerance. MVI integrates two PCs, one dedicated to Dimensional Inspection and one for all five different surface inspections. Moreover, it provides PLC signals to manage valves separation on the line.

Main Characteristics

Weight	Dimensions WxDxH [mm]	Productivity	Measurable piece range			Power Supply		
			Head	Stem	Total length	Voltage	Frequency	Nominal Current
Machine 1100 kg	1920x1165x2067	Up to 850 pcs/h	φ 20÷56 mm	φ 5÷13 mm	90÷250 mm	400 Vac Three-Phase + Neutral + Earth	50/60 Hz	10 A



Measurements Accuracy and Repeatability

Geometrical Analysis	Type of Measure	Accuracy	Repeatability
Head diameter	Average Diameter	1,5 µm	1 µm
Overhead gage diameter			
Groove radius	Min & Max Diameter	3 µm	3 µm
Groove gage diameter			
Stem diameter head side	Collar Diameter	10 µm	12 µm
Stem diameter tip-end side			
Fillet diameter	Seat Corner Radius	0,1°	0,1°
(Anything that can be measured on shadow projection profile)			
	Length & Height	10 µm	10 µm

Surface Inspection

The machine executes 5 different surface inspections using dedicated camera and illuminator on each station. On Face and Tip stations matrix cameras are used while on Stem, Rim and Seat surface linear cameras are installed. All stations work in combination with direct and raking lights, capturing 2 images, one bright and one dark, to emphasize defect of different types.