![IOSS - THE SENSOLUTION COMPANY]

Verification

2D code verification according to ISO/IEC 29158

Inline - tested quality!

The current quality rating for directly marked Data Matrix codes (DPM) provides the basis for an objective quality assessment of the applied code information with the aim of verifying readability throughout all processing stages. This standard can be applied for many marking procedures with are used to directly label components. The applies in particular to laser marking, inkjet and also, with severe limitations, dot peening.

For dot peening codes, "Rated Reading" is usually a significantly better alternative. With standard lighting conditions, the codes are read and individually evaluated according to ISO/IEC 29158. An overall result is determined taking into account all criteria. The system is calibrated when delivered. A certificate of proficiency of the test equipment is available as an option.

| Criteria	Measured variables	
Cell Contrast [CC]		This describes the brightness difference (standardised) between bright and dark dots determined from their average values.
Minimum Reflectance		This describes the brightness difference between the bright modules and the determined brightness of the bright modules in the calibration template.
Cell Modulation [CM]		This describes the brightness uniformity in the bright or dark modules.
Fixed Pattern Damage [FD]		Damage in the "Finder and Alternating Grid".
Distributed Damage [DD]		Summarised assessment of the individual Fixed Pattern zones.
Axial Nonuniformity [AN]		This describes the distortion of code along its main axes. Module size different in X and Y direction.
Grid Nonuniformity [GN]		Deformity of the grid. Evaluates the position of the individual module relative to an ideal uniform grid.
Unused Error Correction [UE]		Unused error correction. A measure of the number of bit errors that had to be corrected using the Reed/Solomon error correction.

Verification

Rated reading of dot peening Data Matrix codes

For dot peening Data Matrix codes, there is a facility in the process to perform an evaluation to check the applied information in addition to decoding. The various criteria for code evaluation allow reliable conclusions about the reproducibility of the marking processes and therefore the readability of the coding at a later date. The "Rated Reading" is the ideal tool for trend analysis and monitoring of the needle wear. This means that possible code reading problems can be discovered at an early stage. The important criteria referred to for qualification are either based on the individual dot or the entire dot matrix.

If the dot being tested survives manufacturing processes such as coating, grit blasting, painting or other surface treatments unscathed, the entire code will also be resistant to these global processes. The following table lists individual qualification characteristics of rated reading.
The measured value ranges are individually parameterisable for the user. This enables him to decide and evaluate which measured variables need to be monitored closely himself. The measured values can be output formatted with the read result.

	Criteria		Measured variables	Reference size	Measured value
Criteria single dots	Homogeneity of the dots		Contrast Area Height, width	Mean value across all code dots	Variance
	Positional accuracy		Deviations in X and Y grid	Grid width in X and Y	Average deviation [%]
Criteria entire dot matrix	Equality of X/Y grid width		Deviation Grid width in X to Y	Average grid width	Average deviation [%]
	Faults		Faults in quiet zone	Total quiet zone	Faults [%]
			Faults in finder	Total Finders	Faults [%]
			Faults in the data area	Max. permissible correction value (UEC)	Unused correction capacity [%]

Subject to change without prior notice. If you require additional information, please contact us.