



Mark'n Read™

by technifor



The DATA MATRIX™ solution for Aerospace



A MARK WHICH DEFIES TIME

www.technifor.com

Why permanent marking ?

A NEW ERA IN AIRCRAFT TRACEABILITY AND SECURITY

To increase **reliability and security of aircraft** through added traceability, Air Transport Association (ATA) has implemented the **SPEC2000 program** for the industry:

- Barcoding section -chapter 9 - details all traceability requirements for aircraft parts, even if serialisation is not required.

Data Matrix™ has been selected as the preferred code for **Direct Part Marking (DPM)**. Suppliers are now requested to comply with this standard on all parts supplied to engine and aircraft manufacturers.

In addition, the **International Aerospace Quality Group (IAQG)** has established a **marking quality standard** that sets DPM parameters for different technologies.

This quality standard has been implemented worldwide:

- Europe: AECMA standard EN9132
- North America: SAE standard AS9132
- Asia: SJAC standard SJAC 9132

Good marking quality is essential to ensure decodability of the Data Matrix™ identification throughout the entire life of the part or product.



THE DATA MATRIX™ SOLUTION AND BENEFITS

Data Matrix™ is an industry leading, **compact 2D symbology** used for Direct Part Marking identification:

- **Unique 2D machine readable symbol**
- **High density data storage:** large number of characters encoded within a very compact space
- **Accuracy:** human error is removed as code is machine readable
- **Robustness:** built-in error correction **ECC200** allows decoding even when code is damaged

Marked with Laser or Micro-percussion, Data Matrix™ ensures a permanent, robust and machine readable ID on your part for increased security and reliability control at every level:

- **Component manufacturing plants**
- **Engine or aircraft assembly plants**
- **Aircraft maintenance centers for spare parts**



Technifor, your key

As an expert in industrial traceability for over 20 years, and creating an unmatched knowledge base and expertise on supplying complete traceability solutions for your business, we are committed to providing you with the highest quality control and Data storage. By providing our customers with the best solutions in terms of Marking, Verifying and Reading.

MARKING

CN312Cm, Sm and Dm micro-percussion machines

High precision machines specifically designed for Data Matrix™ applications, with electromagnetic stylus.

These machines provide a **very high quality, fast Data Matrix™ mark** on any material up to 62 Hrc in hardness.

Both Data Matrix™ codes and human readable characters (including 5x7 standard font) can be marked within the same marking cycle.

Marking area can be selected to suit the application (up to 200x100 mm).

Carbide Stylus Tip

High quality tungsten carbide stylus provide long-lasting, very consistent marking quality for your Data Matrix™ application.

Specific stylus pin angle 120°, 90° or 60° are available to increase **reading decodability** of the marking.

Stylus pins can be resharpened to **optimize productivity and cost effectiveness** of the marking application.

Digitally controlled AutoSense

This high precision module allows accurate positioning of the marking head, maintaining a **very consistent stand off distance** between the stylus point and the surface of the part (accurate to 10 µm).

This results in **highly repeatable Data Matrix™ marking** on various parts and surfaces.

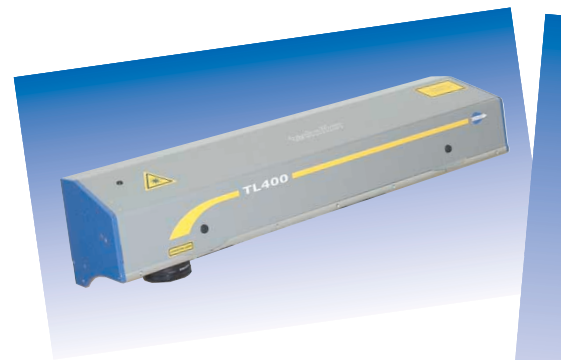
Detection can be programmed through a simple user's interface, that allows full control of retract and pre-positioning features.

A surface detection sensor is embedded in the stylus, providing accurate detection of the actual marking area.

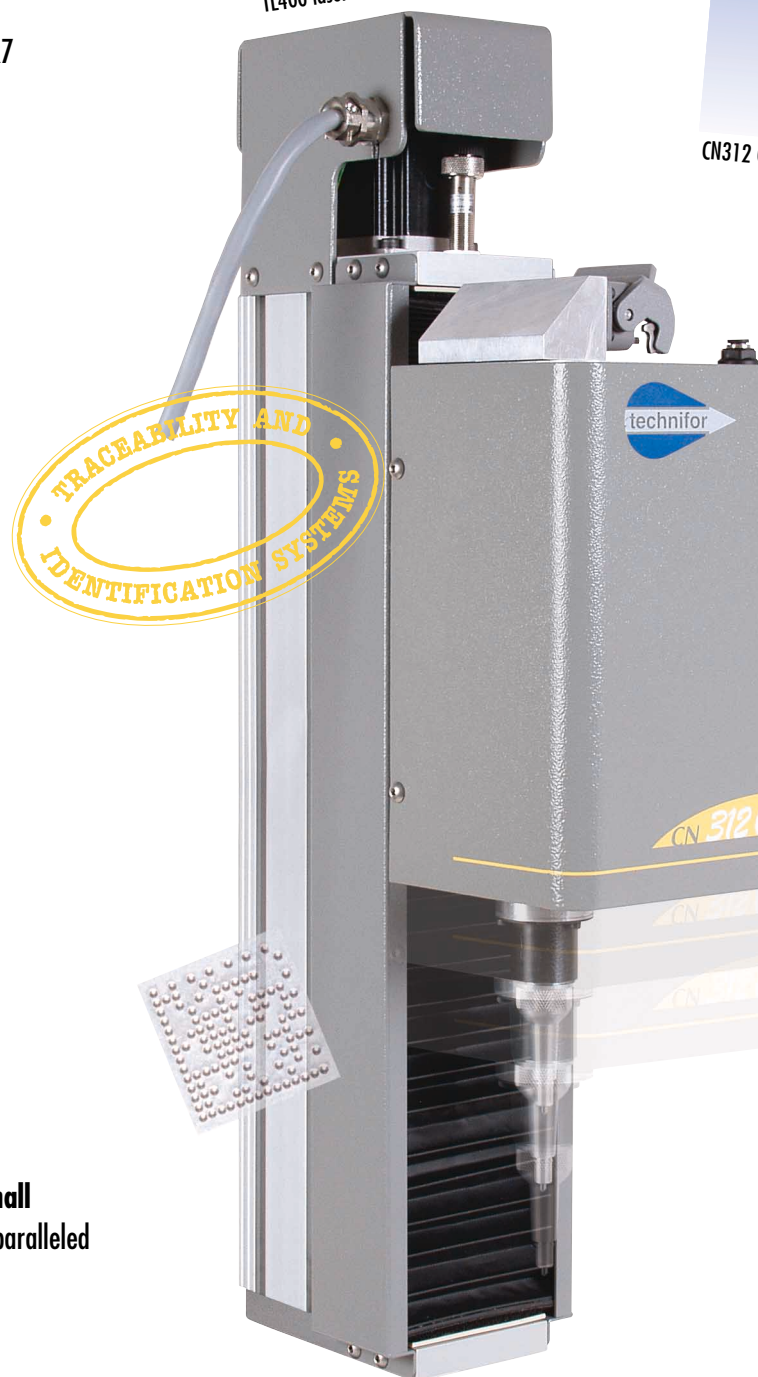
Standard Axis provides up to 300mm adjustment, and specific part clearance can also be custom engineered to meet your requirements.

TL400 Nd: YAG Laser

Laser marking can be a perfect fit for those applications requiring **very small codes** or **very high throughput** (ID Plates or printed labels), providing unparalleled speed and marking quality.



TL400 laser

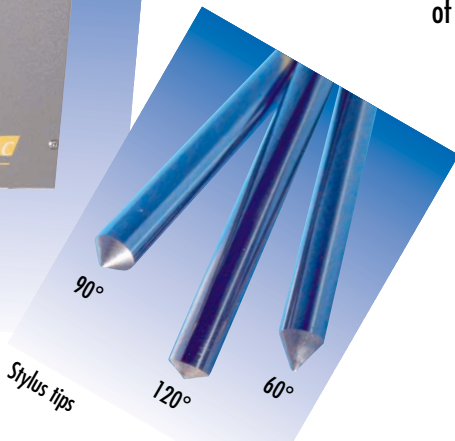


CN312

CN312 Cm with surface sensing feature

partner for Mark'n Read™

ator of dot peening, Micro-percussion technology, Technifor has developed over the years
utions. These applications require not only marking, but also complete process monitoring including marking
Complete Turn-Key solutions, we tailor our offer to suit the exact need of the application in
ing the Data Matrix™ codes used for your part identification.



Stylus tips



Verification software



Handheld reader



CCD camera on-line

VERIFYING VERIFYING

As Aircraft parts are critical, **immediate verification** of the applied mark can help save a lot of time and money down the line. Using Vision tools developed by close partners of Technifor's, we provide a **complete quality control, process monitoring solution** with full remote assistance to help you optimize your marking application.

Marking Quality Control

Using state-of-the-art machine vision technology, Technifor can provide **full marking quality verification** of Data Matrix™ Codes. Verification can be based on various quality standards including **IAQG 9132**.

Full control of all parameters (dot size, dot centre offset, angular distortion, etc.) is provided and available for process control.

Full Marking Process Monitoring

Based on Marking quality control data, a **custom software** provides the operator or supervisor with useful information to optimize process control:

- Global grade using IAQG criteria - Excellent, Acceptable and Non-conform
- Process monitoring with customized alarm thresholds
- "First off" certification
- Data storage of verification parameters

READING READING

At the end of the manufacturing process, or later on during life of the product, **Data capture** may be necessary to retrieve critical information about the part history (supplier, date of manufacturing, lot number, serial number, etc..). Various reading devices can be used for easy, reliable Data Matrix™ decoding:

Data capture devices for all applications

With either fixed camera devices or imager:

- Permanent mounting on production lines
- Interfacing possibilities
- RS232 & Ethernet connectivity
- Real-time in-line verification of Data Matrix™ symbols

or with handheld portable devices

- Off-line reader including camera, lighting and processor
- Decoding symbols at manual assembly and inspection stations

We can provide you with the tools you and your customers will need for data capture on the Data Matrix™ identified parts.

Applications

Identification of turbines blades

Individual identification of each blade on the head:

- Data Matrix™ Code for Cage Code and serial number of the blade.
- Dot Matrix font (5x7) for human readable Identification.

Equipment:

CN312Cm fitted with the MOC stylus (with point sharpened at 120°) and automatic surface sensing



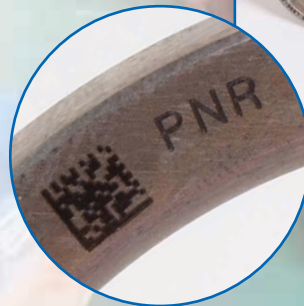
Identification of bearings

Laser marking of each bearing (inside and outside ring):

- Circular marking on the rings (no material removal or raised metal)
- Data Matrix™ code with cage code and part number

Equipment:

Technifor Marking Laser fitted with a 254mm lens.



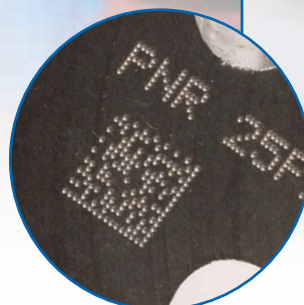
Identification of rotor parts

Individual identification of each moving part of the engine:

- Data Matrix™ code for cage code and serial number
- Data Matrix™ code for the part number
- Dot Matrix font (5x7) for human readable Identification

Equipment:

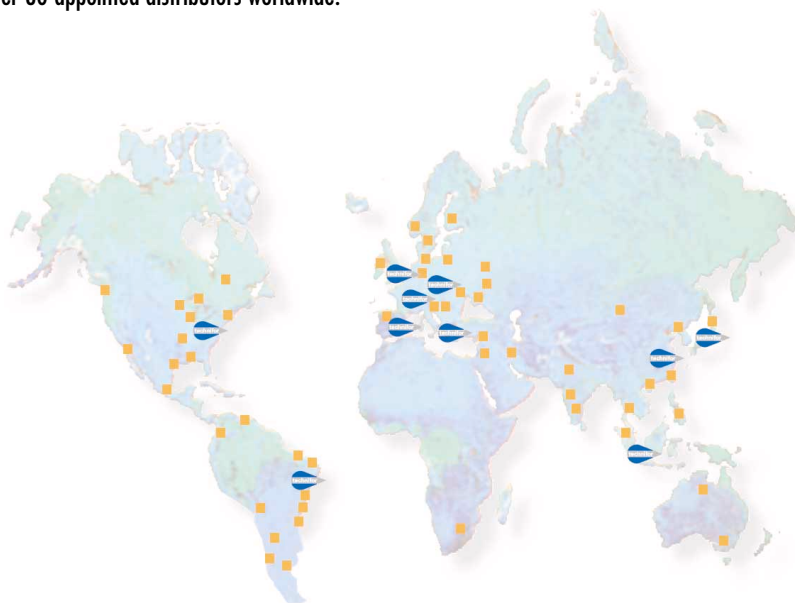
CN312Cm fitted with the M1C stylus (with point sharpened at 120°) and automatic surface sensing





SALES NETWORK

As an expert in industrial marking for more than 20 years, TECHNIFOR can provide truly global support through its network of 9 subsidiaries and over 80 appointed distributors worldwide.



WE ARE YOUR GLOBAL PARTNER

- Experience: Technifor has gained invaluable experience in collaboration with experts in industrial vision to incorporate marking and verification.
- In-depth analysis of your requirements.
- Feasibility study and validation on-site.
- Customised solutions and full integration.
- Specific software.

Our multi-skilled Design Department and our qualified application engineers assist you from the design and development of your traceability solution through to the installation and technical advices. Maintenance contracts are also tailored to meet your needs.

Technifor is a registered training centre.

OUR AEROSPACE CUSTOMERS

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AUXITROL
BLADES TECHNOLOGY
BOEING
BAe SYSTEMS

BARNES AEROSPACE
DASSAULT AVIATION
EUROCOPTER
GE AIRCRAFT
GENERAL ELECTRIC

HAMILTON SUNDSTRAND
NSK-RHP BEARINGS
HISPANO SUIZA
MECACHROME
MEISTER BENELUX

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