



Mark'n Read™

by technifor

The **DATA MATRIX™** solution for
Automotive



A MARK WHICH DEFIES TIME

Why use permanent marking ?

Traceability and Identification of parts and products have become crucial points of the Automotive production process.

- Obtain reliable and rigorous **traceability** of **defective parts**
- Ensure **match-fit** of the parts at the assembly stage
- Record characteristics of each part after measurement or testing
- **Easily exchange data** between customer and supplier sites

All these processes demand an **automatic, efficient, reliable and economical identification solution.**

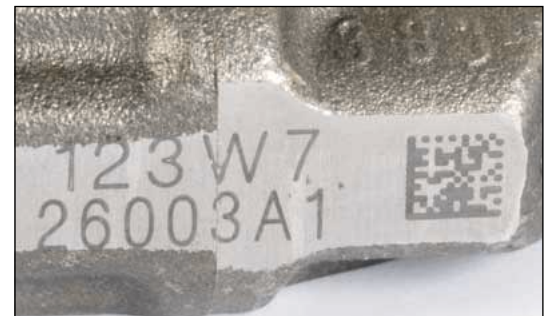
Standards organizations and automotive industry professional groups recommend a direct, permanent and legible marking solution :

- **AIAG** (Automotive Industry Action Group) standards B-4 and B-17
- **ISO** standard ISO 15459, EN1572 and NF Z 63-100

The search for a simple, compact and error-free code leads to the Data Matrix™ symbology. It is the most commonly used 2D code throughout industry (Automotive, Electronics and semiconductor, Aerospace and Pharmaceutical industries, etc...).



Micro-percussion marking



Laser marking

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 the symbol is partially damaged

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

- **Component manufacturing plants**
- **Engine and vehicle assembly plants**
- **Maintenance centers for spare parts**



Data Matrix™ code on tube



Technifor, your key part

Technifor has developed an unmatched knowledge base and

VER

Using Vision t
processed just



MARKING MARKING

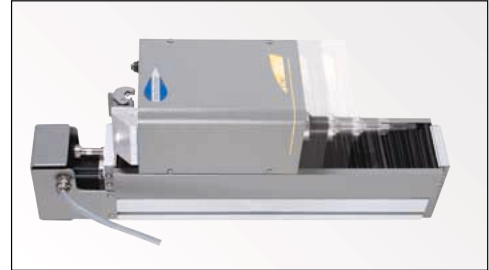
Marking with Micro percussion: profitability and efficiency secured

CN312Cm, Sm and Dm Machines

- High precision guides for reliable **high speed** marking
- Electromagnetic stylus provides **highly repeatable** marking
- Several **marking areas** to suit the application (up to 100x180mm)

Tungsten carbide stylus **reduces maintenance** and allows **very consistent quality** of the **Data Matrix™** codes.

Digitally controlled AutoSense with **surface sensing feature**: the positioning **repeatability** of the marking head (accurate to 10 µm) is assured to meet with the most demanding applications



Digitally controlled AutoSense



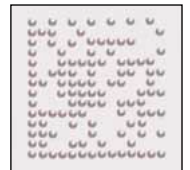
Marking with Laser:
unparalleled speed and marking quality

The **TL400**, lamp-pumped laser, combines **power and speed** for the marking of metal

The **TD410**, diode-pumped laser, is a **compact** version allowing an **optimum integration** for those applications requiring high quality and precision.



TL400 Laser



Application Example: C



Permanent identification of each component and verification of each code's quality



Component conform at the assembly

Partner for Mark'n Read™

and expertise in supplying marking equipment suitable to the application:

VERIFYING

Tools developed by Technifor's partners, the Mark'nRead™ solution provides **complete quality control of the marked codes**. This real-time verification, after the marking stage, insures a precise analysis of the marking quality and of its evolution:

- Individual traceability of each part coupled with data registration
- Marking quality verification based on AIM and AIAG standards
- Set up of customized alarms for a preventive maintenance plan



LED lighting modules



Verification software



CCD camera on-line



Handheld reader

READING

Reading stations provide **easy, reliable retrieval of the information** encoded in the **Data Matrix™** symbol:

- At different stages of the production process
- On sub-assemblies
- At final assembly and for quality control
- On after-sales service calls

Mark'n Read™ includes the vision devices suited to the application and to the process environment

Stand alone reading system

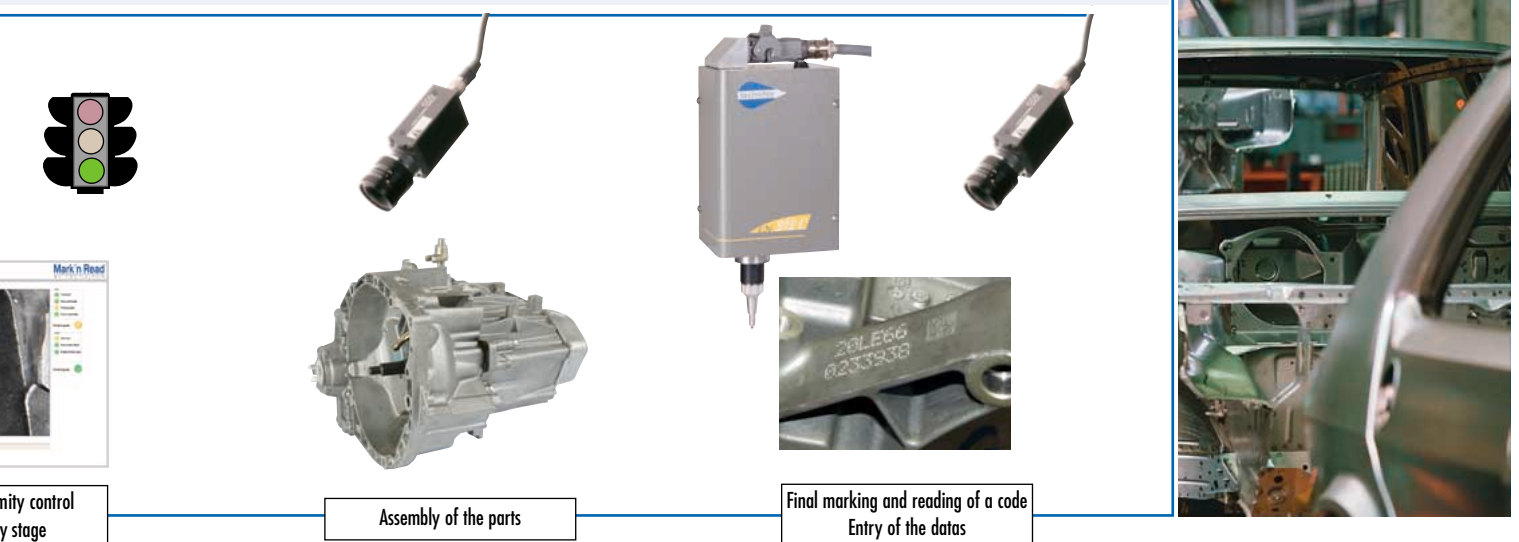
- On-line integrated camera
- Interface to the environment (RS232, ethernet...)
- Remote configuration and set-up

Portable hand-held reading system

- Decoding symbols at manual assembly / inspection stations
- Optional battery for complete autonomy

All the components (Marking, Verification and Reading) can be linked to the industrial environment (PC, PLC or database...).

Gear boxes assembly



Applications

Engine parts

The unique identification of each component allows complete traceability and optimize a quality control

- Camshaft
- Connecting rod
- Cylinder head
- Cylinder block
- Crankshaft
- Piston...



Gear boxes components

The identification is performed at the machining stage and allows, even after heat treatment, a rigorous control at the assembly stage

- Gear
- Bearing
- Torque convertor
- Gear box casing
- Clutch...



Exhaust parts and safety elements

The Data Matrix™ identification of these components, critical in terms of security, allows complete traceability during their entire life

- Steering part
- Transmission component
- Brake
- Exhaust line
- Fuel tank
- Particle filter (FAP)...



Plastic parts

The permanent identification by laser of a Data Matrix™ code allows the customer and supplier to automatically exchange information without removal risk

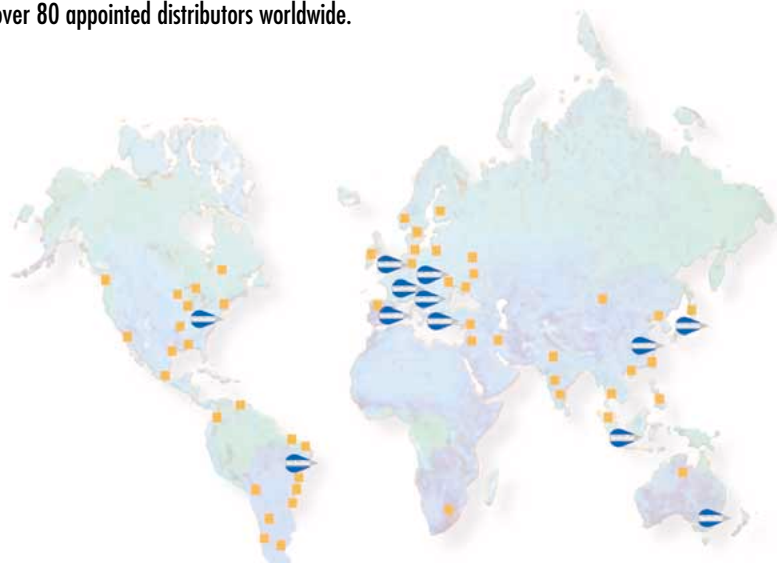
- Sensor / Injector
- Fuel level sensor
- Sump
- Flywheel
- Seat belt element
- Airbag part...





SALES NETWORK

As an expert in industrial marking for more than 20 years, TECHNIFOR can provide truly global support through its network of 11 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 advice. Maintenance contracts are also tailored to meet your needs.

Technifor is a registered training centre.

OUR AUTOMOTIVE CUSTOMERS

Automotive constructors

Audi
BMW
Chrysler
Citroën
Daewoo
Daimler

Ferrari
Fiat
Ford
General Motors
Mazda
Mitsubishi
Nissan

Peugeot
Renault
Seat
Toyota
Volkswagen
Volvo
etc...

Tier-one suppliers

Allied Signal
Arvin
Autoliv
Benteler
Bosch
Borg-Warner

Dana
Delphi
Eaton
Faurecia
Koyo
Meritor
Oxford

Sachs
Sagem
TRW
Valeo
Visteon
etc...

CONTACT US

Technifor SAS - France
114, quai du Rhône
01708 Miribel Cedex
Tel.: (33) 4 78 55 85 55
Fax: (33) 4 78 55 85 54
E-mail: tf@technifor.com

Technifor Ltd. - U.K.
Atherstone on Stour, Stratford upon Avon
Warks CV37 8NE
Tel.: (44) 1789 450 909
Fax: (44) 1789 450 111
E-mail: sales@ltd.technifor.com

Technifor / Gravograph - Switzerland
Champ Olivier 2
CH 3280 MORAT
Tel.: (41) 26 678 7200
Fax: (41) 26 678 7222
E-mail: tf@technifor.com

Technifor KK - Japan
1-25 TAKAHATA-CHO NISHINOMIYA,
HYOGO, 663-8202
Tel.: (81) 798-63-7325
Fax: (81) 798-63-6280
E-mail: tfkk@jp.technifor.com

Technifor Inc. North Carolina, U.S.A
9800-J Southern Pine Boulevard,
Charlotte, NC 28273
Tel.: (1) 704 525 5230
Fax: (1) 704 525 5240
E-mail: tfinc@usa.technifor.com

Technifor GmbH - Germany
Mausierstraße 13
D-71640 Ludwigsburg
Tel.: (49) 7141 298098-0
Fax: (49) 7141 298098-19
E-mail: tfgmbh@gmbh.technifor.com

Gravograph Sdn Bhd - Malaysia
A-0 7 Megan Phoenix
Plaza Phoenix Business Park
Jalan 2/142A, off Jalan Cheras 56000 Kuala Lumpur
Tel.: (60) 3 91 00 1720
Fax: (60) 3 91 00 1620
E-mail: fam_tech@tm.net.my

Technifor HKS CO Ltd., China
Shanghai Rep. Office
Room A8412 Jia Hua Business Centre
808 Hong Gao Road - Shanghai 200030
Tel.: (86 21) 6447 3212
Fax: (86 21) 6447 4951
E-mail: tfhks@hks.technifor.com



Technifor Srl. - Italy
Corso Laghi 305
10051 Avigliana (To)
Tel.: (39) 011 932 74 47
Fax: (39) 011 932 74 15
E-mail: tf.srl@technifor.com

Technifor / Gravograph - Australia
46-48 Mc Caulay Street - PO BOX 238
ALEXANDRIA N.S.W 2015
Tel.: (61) 29 699 8422
Fax: (61) 29 319 6759
E-mail: tf@technifor.com



Technifor Sl. - Spain
Gran Vía de las Cortes Catalanas 604, 5ª1a
08807 Barcelona
Tel.: (34) 93/481 68 82
Fax: (34) 93/481 68 88
E-mail: tfsl@sl.technifor.com

Technifor/Pictor Ltda - Brazil
Rua Nelson Romao N°112/122
04767-050 - Sao Paulo SP
Tel.: (55) 11 5541 7493
Fax: (55) 11 5541 7493
E-mail: vendas@ltda.technifor.com