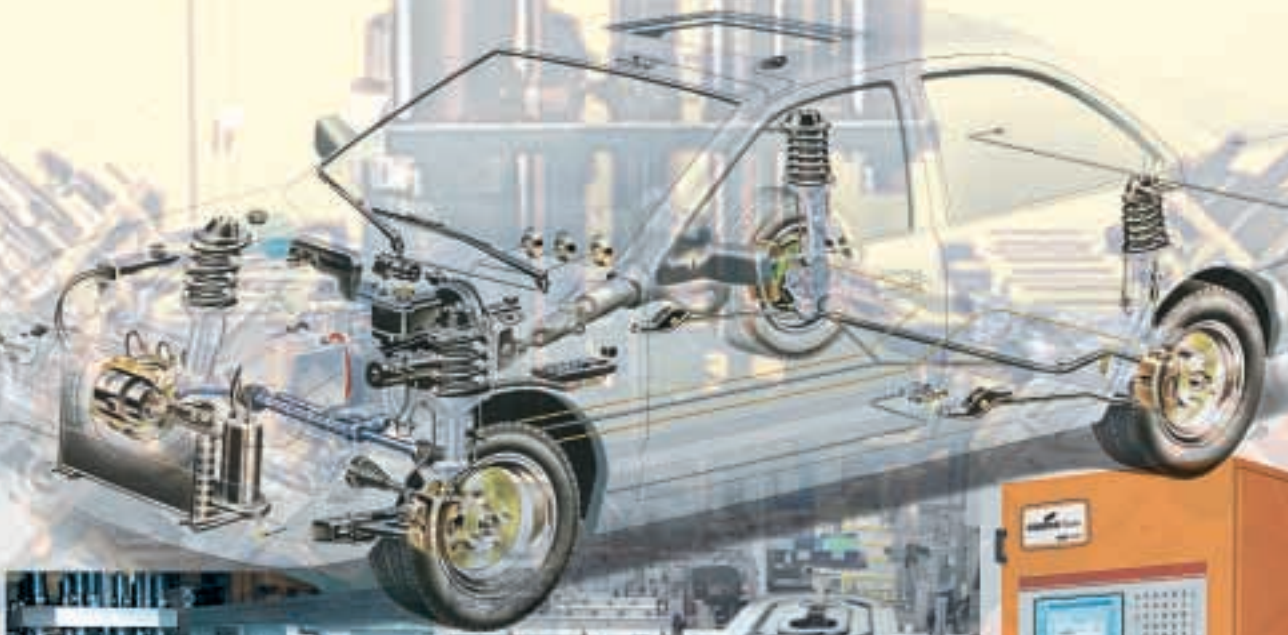


# DGD/Automated Systems. Your Global Automation Solutions Partner.



 **COOPER** Tools



## Cooper Industries

From its origins in 1833 as a small iron foundry in Mount Vernon, Ohio, Cooper Industries has evolved into a diversified, multi-billion dollar manufacturing company with a worldwide presence.

Headquartered in Houston, Texas, the company employs approximately 30,000 people and operates more than 100 manufacturing facilities worldwide.

## Cooper Tools

Headquartered in Lexington, SC, the Cooper Tools division serves primarily the global automotive, aerospace, energy, and general industry markets through 17 manufacturing and sales/service facilities with over 1,800 employees located in the Americas, Europe and Asia Pacific.

Our well-known brands have grown to 17, allowing us to service practically every industry with global products and services that are continually improved, addressing the specific needs of our global customers.



## DGDI Automated Systems

DGD/Automated Systems is a world leader in fastening systems and assembly equipment. Our experienced staff of design engineers and technicians, combined with our quality equipment provide assembly solutions from single stand-alone stations to complete assembly lines. With dedicated facilities strategically located around the globe we are also able to quickly service what we sell.

Historically, DGD/Automated Systems has been committed to the ongoing challenge to excel in every aspect of the business, from engineering and manufacturing to customer relations. We are dedicated to offering the very best technical solutions and service, with a strong focus on providing application solutions that increase product performance and the profitability of our customer's .





# Global Automation Experience

Designing automated systems for tomorrow requires a hands-on knowledge of the past coupled with a vision of the future.

At DGD/Automated Systems we have a vast wealth of automation experience to draw from. We have been providing our clients with custom designed application solutions for over 30 years. Many of our innovations have become accepted industry standards.

Our talented staff of engineers utilize these global experiences of yesterday to design systems and software solutions for tomorrow and beyond.



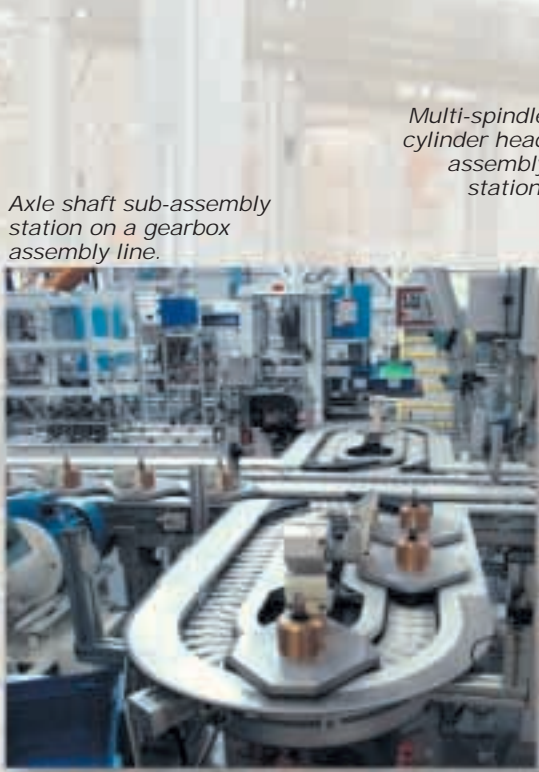
Solutions that are technically and economically viable for our customers.

The most innovative automation system in the world may look good in the conceptual stages but today's competitive market demands that it performs. We pride ourselves in successfully providing our customers with flexible solutions that work, day after day, shift after shift. And when needed, our trained service and support technicians are strategically located to respond quickly.

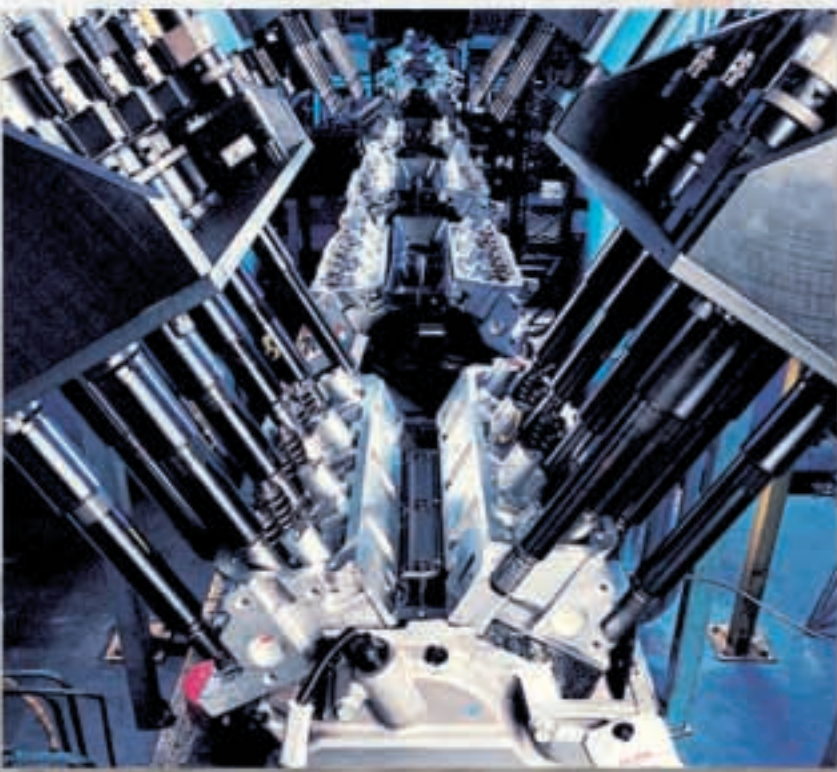
At DGD/Automated Systems we are dedicated to partnering with our global customers to provide the best automation solutions available.



*Intake and exhaust manifold tightening station.*



*Multi-spindle cylinder head assembly station.*

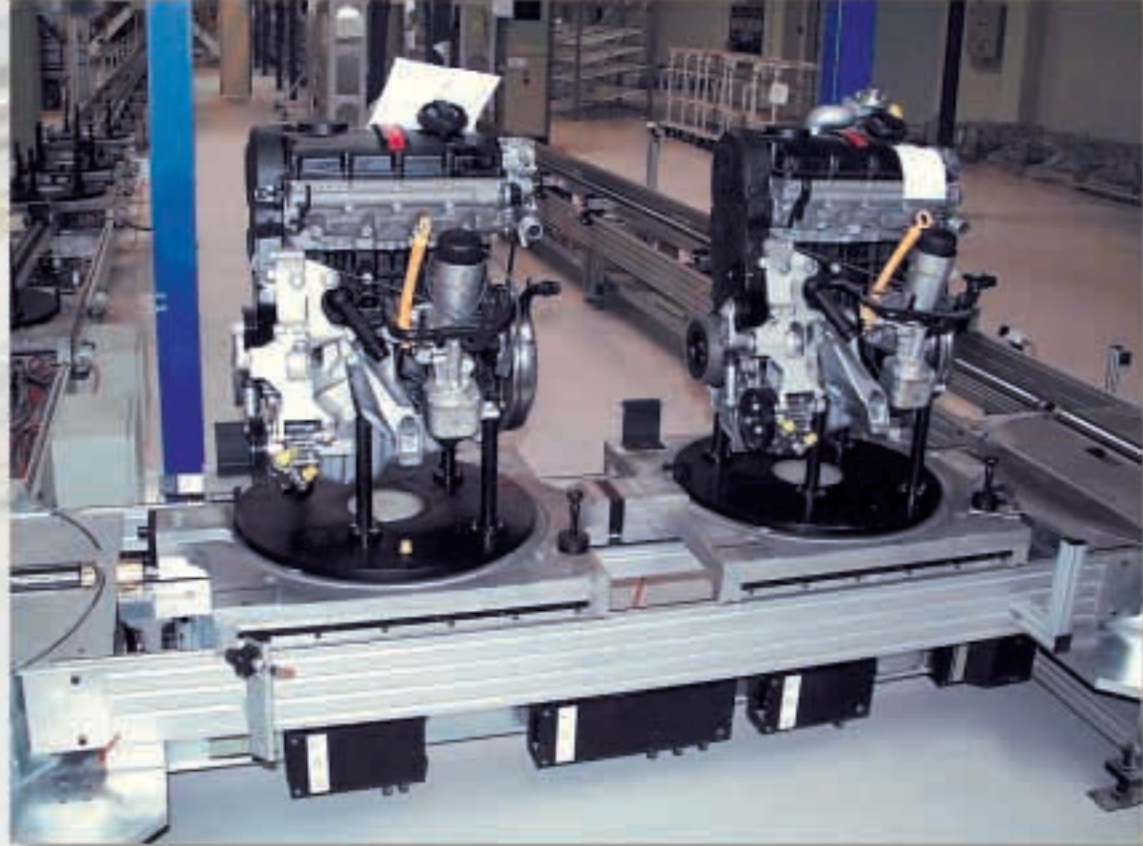


*Axle shaft sub-assembly station on a gearbox assembly line.*

**experienced personnel • system/software design • global support/service**



*Differential gear sub-assembly station.*



*Engine assembly line using GardoTrans transport system with rotatable pallets.*



# World Class Tooling

High production automated assembly applications mandate quality tooling with precise measurable controls.



DGD/Automated Systems' equipment is second to none. Each and every spindle is constructed of the best materials available, precision machined to the closest of

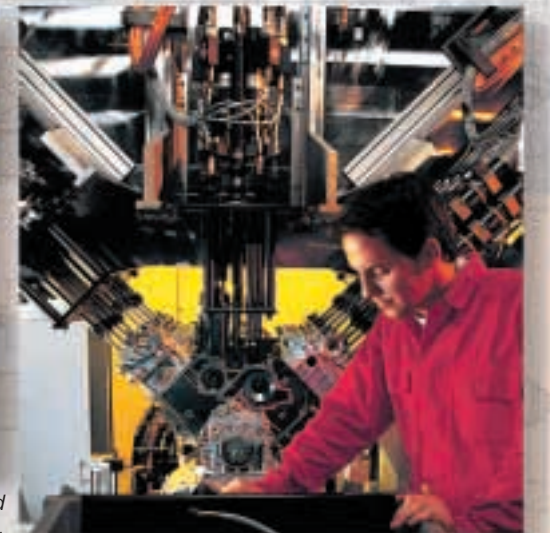
tolerances, and meticulously assembled in one of our ISO 9001 certified plants. Rigorous testing is implemented at each and every stage of the process.

Drive is via a high performance DC motor fed by a fully digital servo and controlled by a resolver. Long service life and modularity of design make our spindles the top choice in the world today. Four sizes are available covering a torque range from 5-1100 Nm.

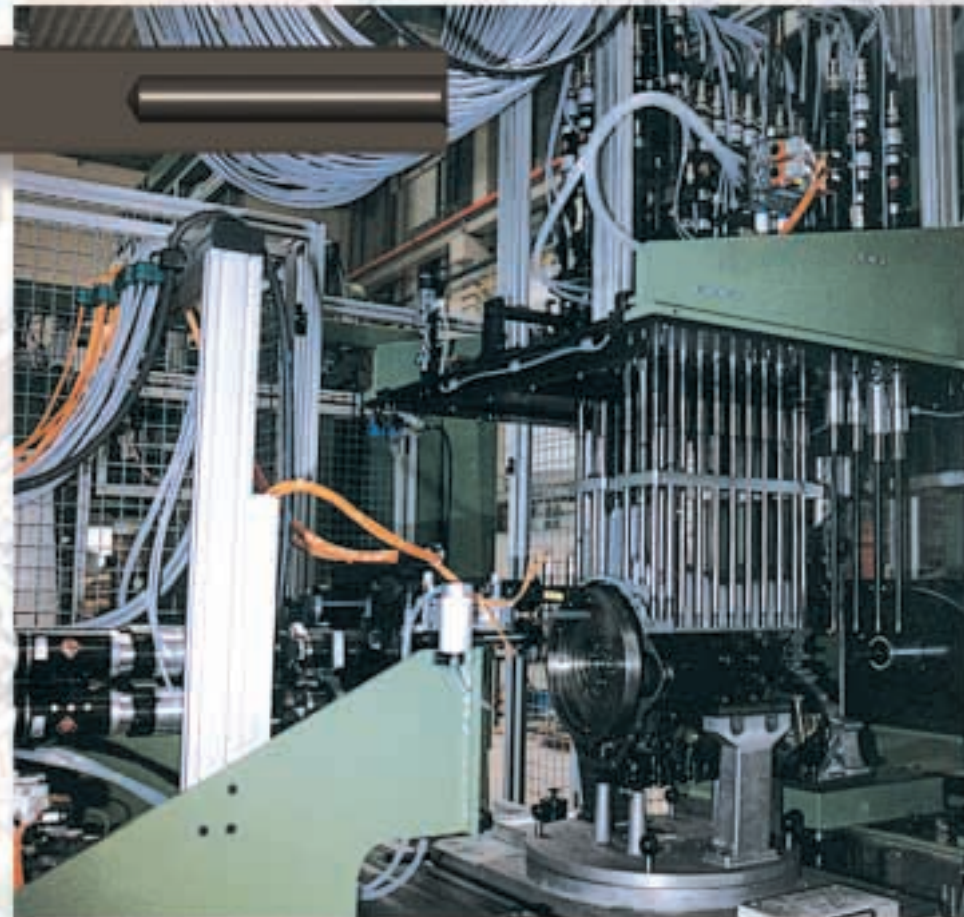
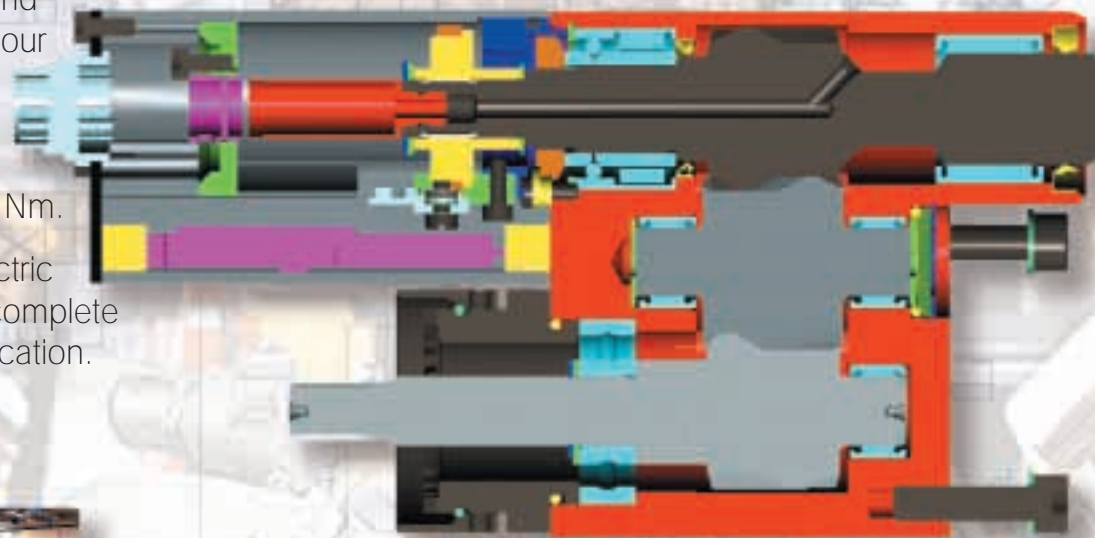
A full line of Cleco® DC electric tools are also available to complete any special assembly application.



*Cylinder heads and intake manifold multi-spindle engine assembly station.*



**precision fixtured/handheld tooling • modular design • wide torque range**



*36 spindle oil pan assembly fixture.*





# Advanced Automation Technology

In the world of automated assembly, change is constant. Flexibility in systems design and componentry is a necessity.

At DGD/Automated Systems we provide our customers with assembly solutions that work not only today, but can easily and economically be adapted for tomorrow.

At the core of our systems design is the m-Pro-400™ processor. The m-Pro-400™ masters all typical tightening processes and can be reconfigured for special or new strategies. Total system integration can be accomplished from single stand-alone assembly stations to complete assembly systems.

The intuitive touch-screen programming and operation of the m-Pro-400™ provides accurate communication between operator, processor and fastening equipment. State of the art componentry controls, records and reports each rundown for maximum production and quality assurance.

DGD/Automated Systems is continually developing and researching new advances in technology. Finding new ways to provide maximum flexibility for our automation partners.



Ethernet networking allows monitoring of the fastening processes from remote locations. Parameter input and programming updates can also be done without going onto the plant floor.



Engine assembly station with multi-spindle fixtures and Cleco Tightening Manager System.

## m-Pro-400™ processor • totally integrated control • maximum system flexibility



mPro-400™ main processor. Touch-screen control for ease of use.

TM12 Tightening Module for 1B & 2B spindles

TM34 Tightening Module for 3B & 4B spindles

TMH Tightening Module for handheld tools



Multi-spindle engine assembly station.



Timing cover assembly station and GardoTrans transport system fully integrated with m-Pro-400™.

The mPro-400™ control cabinet is available in two sizes. Size A can handle up to 16 modules. Size B up to 32.



# Modular Transport System

Reliable transportation between stations is the foundation of any production line. Flexible automation starts with a transport system that can be easily adapted or expanded in an economical manner when needed. This as well as the requirement of industry for higher production rates and increased machine availability was the impetus for the development of the GardoTrans™ transport system.

Standardized GardoTrans™ modules allow cost effective solutions to most system requirements. A variety of modules meet users needs for over/under, carousel or other assembly line configurations.

The GardoTrans™ System has become the standard for some of Europe's most prestigious manufacturers. Over 100,000 feet have been installed in auto and truck assembly plants worldwide. The system has been in use in high production environments for over 25 years.

The simple design concepts have been refined over the years and are employed to minimize maintenance and maximize flexibility. Minimum wear parts reduce operating costs and increase uptime. Clean, quiet operation provides a safe and efficient workplace.

*Special pallet for a drivetrain assembly line.*



*Steering component assembly line.*

*Three rail system 90° rotating turn.*

**GardoTrans™ • flexible modularity • time-proven durability • efficient design**



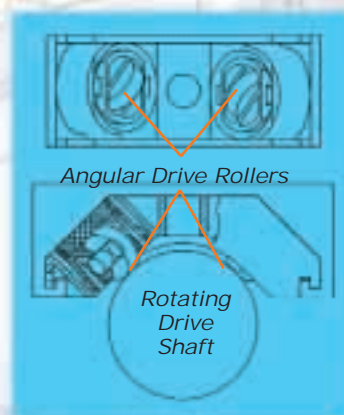
*Three rail system elevated track section engine assembly line.*



*A vertical version of the GardoTrans transport system is used on this engine assembly line.*



*Two rail system elevator/lowerator.*



The GardoTrans™ transport system imparts motion through angular rollers mounted to the bottom of the pallet making contact with a rotating hardened steel drive shaft. Pallet speed and drive force are adjustable by changing the angle of the drive rollers.

*Vertical turning station.*

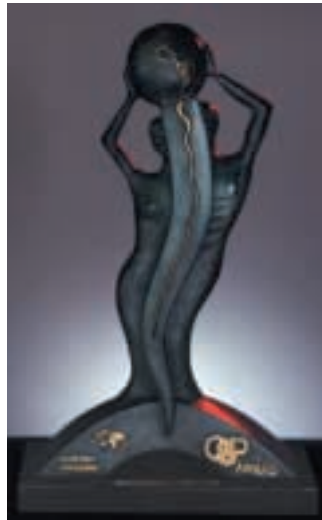


# Global Automation Partners

DGD/Automated Systems partners with many of the world's largest automobile and truck manufacturers. Installations include every facet of the assembly process.

For more information on DGD/Automated Systems or to request a quotation on an upcoming project, give us a call. In the Americas call 248-391-3700, in Europe call 49-7363-810.

We look forward to the opportunity of becoming your automation partner.



General Motors Supplier Award.



2003 Volkswagen Star Night Supplier Award.



- AIRETOOL® • APEX®
- BUCKEY® • CLECO®
- COOPER AUTOMATION™
- DGD® • DOLER® • DOTCO®
- GARDNER-DENVER®
- GARDOTRANS™ • GETA™
- MASTER POWER®
- METRONIX™
- QUACKENBUSH™
- RECOULES™
- ROTOR™
- UTICA®

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