COMPANY PROFILE

TECHNAI®
TEAM
DIRECT-DRIVE MOTION TECHNOLOGY

Technai Team started off in 1993 as a design engineering and automation services provider for the Machine Tool industry.

The decision to invest in the development of Direct Drive System applications for rotary axis dates back to the second year in business.
In those years, Linear motors were at the core of debate, very much considered technologically innovative and a solution that would revolutionize the field. Technai Team seized the opportunity to progress with the advent of digital electronic controllers for linear motor (Direct Drive Linear motors).

The company moved forward and became the pioneers of the development and integration of concrete solutions with the equivalent technology but applied to rotary axis (Rotary Direct Drive). The turning point for the Company dates back to the 11th EMO in 1995, where Technai Team introduced the first Direct Drive rotary table for milling and turning.

YOUR PARTNER IN **DEVELOPMENT AND PRODUCTION** OF DIRECT DRIVE SOLUTIONS

TECHNAI IS THE PLURAL FORM OF THE GREEK WORD "TECHNE".

THE WORD "TECHNE" INCORPORATES THE MEANINGS WE CURRENTLY GIVE TO THE WORDS "TECHNIQUE" AND "ART". ARTISTS ARE ENGINEERS AND ENGINEERS ARE ARTISTS, IN BOTH CASES, THEIR CREATIVE PROCESS INVOLVES A METHOD. THIS IMPLIES SIMULTANEOUS PRACTICAL AND THEORETICAL KNOWLEDGE, AND AWARENESS.

From then on, Direct Drive technology for rotary axes became Technai Team's mission.

Years of field experience implementing "Torque Direct Drive" motor technology in industrial automation systems.

THE DESIGN AND MANUFACTURE
OF AUTOMATION SYSTEMS
IS TECHNAI TEAM'S
TRADITIONAL EXPERTISE.

THE DESIGN AND MANUFACTURE
OF "TORQUE MOTORS"
(ROTO-STATOR KITS) IS THE
SPECIALIZED EXPERTISE THAT THE COMPANY
HAS ACQUIRED DURING ITS LIFETIME.

This is the knowledge-base
that Technai invests in its
Customer Service and Support
and in the optimization of the
"Direct Drive" torque motor products.

DIRECT DRIVE TECHNOLOGY

The Direct Drive principle is simple: the electric servomotor generates the mechanical energy needed to move the load, and the rest is done by the electronic-digital servo-control.

The first machines which were servo-controlled by means of drives, CNC and PLC assigned to these devices the only function of effecting the sequence of movements that were previously carried out "by hand" by the operator; precision and quality continued to be the result of the mechanical quality of the machine.

Second generation electronics introduced assistance and compensation functions to overcome some limitations or defects typical of mechanical and geometrical transmission: for example the compensation of axis linearity errors and inversion backlash.

With the advent of digital electronics, servo-controls overcome the performance limits of mechanical transmission, and make up for defects through feed forward functions. This attempt to go beyond the physical limits of a mechanical transmission system sets a new milestone:

The performance of servo-control electronics is limited by mechanical transmission components!

"Linear motors" and, for the rotating axes, "Torque" motors radically resolve the problem because they eliminate the mechanical transmission, therefore they define a new category of servo-controlled actuators the DIRECT TRANSMISSION or DIRECT DRIVE.

BENEFITS
OF DIRECT DRIVE TECHNOLOGY COMPARED TO CONVENTIONAL SOLUTIONS

A Direct Drive system with Torque motor releases the potential of electronic regulation achieving immediate benefit.

The absence of gearbox means that most of problems associated with friction, wear and other cyclical drive defects are overcome. Performance can be configured according to the technical specifications, against the limits of individual components that make up the Direct Drive system. Also, the number of components and assembly costs are reduced. The simplified, symmetrical structure facilitates the construction of adjacent parts.

The combined result of such aspects leads to a substantial increase in performance (estimated in one order of magnitude) in terms of:

- **Precision of positioning and/or execution of movements**
- **Superior dynamic performance in the work cycles**

Technical-economic aspects associated to the Direct Drive system deserve a thorough insight. It is in fact appropriate to perform a careful comparative assessment.

The key aspects are Torque – Volume – Cost and they are directly and rigidly proportional to each other. Equally important is the relation between Cost – Precision – Dynamic that is linked to the previous one and emphasizes the necessity to verify the real need for a superior performance.

In such context, the economic rationale for the solution adopted is: The greater is the demand for precision and dynamic performance, the higher is the added value of the Direct Drive approach, the more justified are the associated costs.

The Production Department,
enlarged and modernized in 2015,
is structured to manage all phases
of motor construction.

Skill of our employees, material quality and
high-tech tooling contribute all together to
the level of reliability of our motors.

QUALITY CERTIFIED
UNI EN ISO 9001:2008


IQNet
THE INTERNATIONAL CERTIFICATION NETWORK
CERTIFICATE
ISO 9001:2015
TECHNAI TEAM SPA
Registration Number: IT - 65179


CERTIFICATO N. 9190.TEAA
TECHNAI TEAM SPA
ISO 9001:2015

The very large number of products
installed and operating into machines
all over the world, represents the best
evidence of the level of quality achieved by
Technai Team in Direct Drive technology.

The organization of Production is structured for handling a wide range of custom solutions. Our strength lies in the flexibility of the order processing.
On time deliveries are a priority at Technai.
Our organization is supported by a high-tech IT-system.
Product planning and quality control procedures are integrated in the production process. Technai has an active, up-to-date engineering organization dedicated to handling application projects. Mechanical and electromagnetic design both converge in the activities of our Customer Service and Support.

Analysis of specifications,dynamic and physical dimensioning of the application, preliminary and executive mechanical and electromagnetic design, construction and certification of prototypes: these are all activities that Technai offers to support every application project.

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