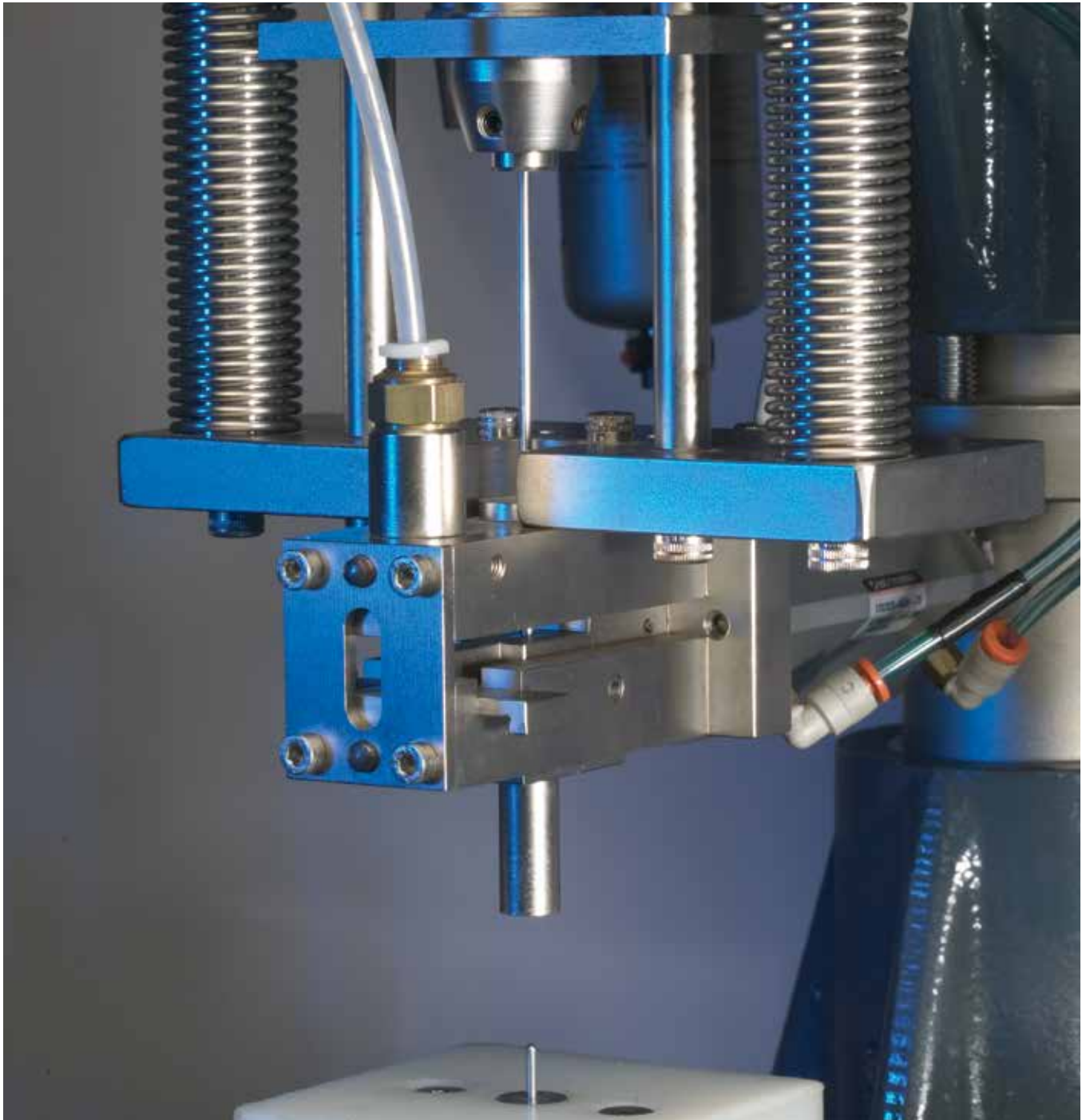


SPIROL[®]

PIN INSTALLATION TECHNOLOGY





Cost effective, flexible solutions for your pin installation requirements

Five Step Process for Success

STEP 1

We determine your assembly objectives and prepare a proposal

SPIROL assesses your needs in areas related to the application:

- Component specifications and performance requirements
- Special control/safety requirements
- Critical component specifications
- Quality objectives
- Production objectives

Based on your requirements, **SPIROL** develops the assembly concept best suited to meet your objectives. A detailed proposal is submitted with a fixed price and a performance guarantee.

STEP 2

We design an installation system based on your defined objectives

Upon receipt of your order, the assembly concept is reviewed and assigned to a **SPIROL** Project Engineer. A detailed layout is developed, components are specified and engineering drawings are prepared. Control packages are carefully developed to ensure the system is interactive and fail-safe.

Our standardized, time-tested, modular designs are robust, reliable and easily adjustable – allowing for customization to meet the specific needs of your application. This translates into faster delivery, greater reliability, and the best value for equipment of comparable quality.

STEP 3

A fixture is designed to hold and align the components during installation

SPIROL specializes in custom part-holding devices called **fixtures**.

Fixturing, which includes aligning and holding your components accurately and firmly during installation, is a critical element to the performance of your installation equipment.

SPIROL reviews the detailed layout with you to ensure that all aspects of the machine meet your approval.

STEP 4

We build, test, install, and certify the machine – including educating operators and maintenance personnel

The assembly of the equipment is closely monitored by the **SPIROL** Project Engineer. The equipment is thoroughly tested at our plant.

As part of our standard procedure, **SPIROL** will send a qualified technician to your facility to set-up the machine and train your operators on the use and maintenance of the equipment. Only after you are satisfied with the quality and performance of the equipment is it turned over to you.

STEP 5

We provide total customer satisfaction

We have a long history of providing installation equipment of the highest quality and reliability. We are so confident in our equipment that **SPIROL offers the only performance warranty in the industry.**

SPIROL Pin Inserters install all common types of pins – headed or straight – as well as bushings, rivets, compression limiters, and other similar components.

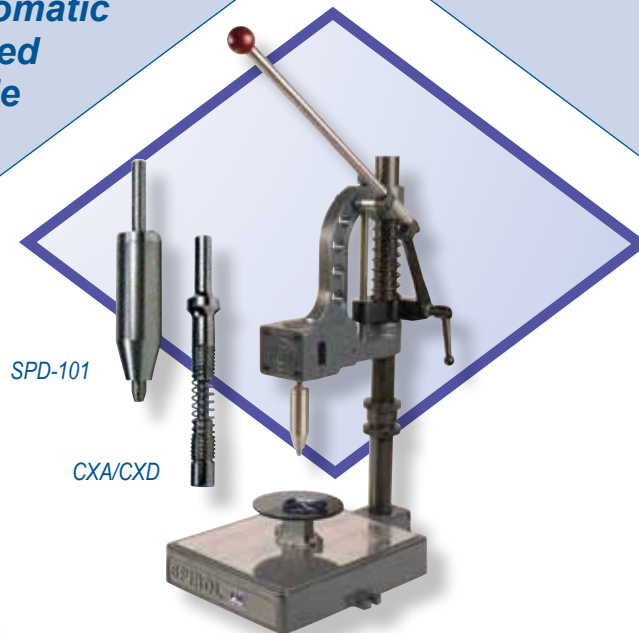


Our objective is to enhance your competitiveness through increased productivity, product quality and reduced manufacturing cost. SPIROL remains part of the process until the machine is meeting your objectives and paying for itself.

Quality installation with enhanced productivity

Manual, semi-automatic and fully automated solutions available

Standard modules tailored to your application



SPD-101

CXA/CXD

*Model CR shown without guard
—
Guards are standard with all automatic machines*

Model PM Manual Pin Inserters

Easily accommodates all **SPIROL Pin-Driving Chucks, SPD-101, CXA and CXD**, which are selected based on pin size.



Model PR
Semi-Automatic
Vertical Pin Inserters



Model CR
Semi-Automatic
Vertical Pin Inserters

Options such as rotary index tables, pin sensing, force monitoring, and drilling and pinning combinations can be added for enhanced productivity, heightened process control and error-proofing.

Dual and triple versions of semi-automatic models are readily available to suit your assembly objectives.



Application:

A manufacturer of after-market Tactical Rifle Sights had been manually assembling a folding rear sight. The sight contained two Solid Dowel Pins, and a Slotted Spring Pin. The Solid Pins were manually installed in a multistage process. Due to manufacturing tolerances, the pins were occasionally loose, requiring an additional operation to ensure retention. The Slotted Pin was also manually installed. This process required the operator to pre-compress a spring with a clamp, then "start" the Slotted Pin into the hole. The sub-assembly was then placed under a manual press to complete the installation. The pin was not easy to handle due to its small diameter resulting in a slow, tedious process. Any misalignment of the pin resulted in damage to the assembly, therefore alignment and proper pin location was critical.

Solution:

SPIROL Engineering recommended the use of **Helical Grooved Pins** in place of the Solid Dowel Pins to absorb hole tolerances and provide positive retention, and a **Model CRD Automatic Dual Pin Insertion Machine** to install the pins. The operator easily loads the sight into a fixture nest, and activates the machine. The inserter advances, simultaneously installs both Helical Grooved Pins, retracts and resets. This machine/pin combo has improved production four-fold, and virtually eliminated all scrap.

The customer also replaced the Slotted Pin with an automation friendly Coiled Pin and uses a Model PR Automatic Pin Inserter with a custom designed fixture to ensure trouble free pin installation. The operator simply places the assembly into the fixture, locates the fixture onto a post, and then gently pushes the assembly forward to compress the spring. The assembly then moves over an alignment pin, and the machine is activated to automatically install the Coiled Pin.

SPIROL Application Engineers will review your application needs and work with your design team to recommend the best solution. One way to start the process is to select **Installation Systems** in our **Optimal Application Engineering** portal at www.SPIROL.com.

Technical Centers

Americas

SPIROL International Corporation
30 Rock Avenue
Danielson, Connecticut 06239 U.S.A.
Tel. +1 860 774 8571
Fax. +1 860 774 2048

SPIROL Shim Division
321 Remington Road
Stow, Ohio 44224 U.S.A.
Tel. +1 330 920 3655
Fax. +1 330 920 3659

SPIROL West
1950 Compton Avenue, Suite 112
Corona, California 92881 U.S.A.
Tel. +1 951 273 5900
Fax. +1 951 273 5907

SPIROL Canada
3103 St. Etienne Boulevard
Windsor, Ontario N8W 5B1 Canada
Tel. +1 519 974 3334
Fax. +1 519 974 6550

SPIROL Mexico
Carretera a Laredo KM 16.5 Interior E
Col. Moisés Saenz
Apodaca, N.L. 66613 Mexico
Tel. +52 81 8385 4390
Fax. +52 81 8385 4391

SPIROL Brazil
Rua Mafalda Barnabé Soliane, 134
Comercial Vitória Martini, Distrito Industrial
CEP 13347-610, Indaiatuba, SP, Brazil
Tel. +55 19 3936 2701
Fax. +55 19 3936 7121

Europe

SPIROL France
Cité de l'Automobile ZAC Croix Blandin
18 Rue Léna Bernstein
51100 Reims, France
Tel. +33 3 26 36 31 42
Fax. +33 3 26 09 19 76

SPIROL United Kingdom
17 Princewood Road
Corby, Northants
NN17 4ET United Kingdom
Tel. +44 1536 444800
Fax. +44 1536 203415

SPIROL Germany
Ottostr. 4
80333 Munich, Germany
Tel. +49 89 4 111 905 71
Fax. +49 89 4 111 905 72

SPIROL Spain
08940 Cornellà de Llobregat
Barcelona, Spain
Tel. +34 93 193 05 32
Fax. +34 93 193 25 43

SPIROL Czech Republic
Sokola Tůmy 743/16
Ostrava-Mariánské Hory 70900
Czech Republic
Tel/Fax. +420 417 537 979

SPIROL Poland
ul. M. Skłodowskiej-Curie 7E / 2
56-400, Oleśnica, Poland
Tel. +48 71 399 44 55

Asia Pacific

SPIROL Asia Headquarters
1st Floor, Building 22, Plot D9, District D
No. 122 HeDan Road
Wai Gao Qiao Free Trade Zone
Shanghai, China 200131
Tel. +86 21 5046 1451
Fax. +86 21 5046 1540

SPIROL Korea
160-5 Seokchon-Dong
Songpa-gu, Seoul, 138-844, Korea
Tel. +86 (0) 21 5046-1451
Fax. +86 (0) 21 5046-1540

e-mail: info@spirol.com