FINN-POWER

- PUNCHING
- LASER CUTTING
- BENDING
- INTEGRATED PUNCHING & SHEARING
- **INTEGRATED PUNCHING & LASER CUTTING**
- FLEXIBLE MANUFACTURING SYSTEMS

MULTI-TECHNOLOGICAL SHEET METAL PROCESSING: LP6

FINN-POWER LP6

THE LATEST IN INTEGRATED FINN-POWER PUNCHING - LASER CUTTING TECHNOLOGY

The inherent benefit of integrated punching and laser cutting is versatility. You can use the turret punch press where it is easier or faster and the laser where it is most efficient. Depending upon the manufacturing task at hand, you can always choose the most productive manufacturing method. This amounts to flexibility for fulfilling varying requirements, cost-efficiency and competitiveness.

Hydraulic high-performance punching
(300 kN / 33 US ton)

Integrated laser cutting
(high-quality 2.5 kW laser beam power)

Max. sheet size
3,074 mm x 1,565 mm / 120" x 60"
(LP8: 4,300 mm x 1,565 mm / 169" x 60")

Max. material thickness
8 mm / .314" (punching),
6 mm / .236" (laser cutting; mild steel 8 mm / .314")

Modular automation of material flow

The heart of FINN-POWER LP6 is the integration of FINN-POWER's latest hydraulic punching technology with state-of-the-art laser technology.

FINN-POWER's first hydraulic turret punch presses were introduced in 1983. Following the long line of subsequent FINN-POWER innovations, our current state of hydraulic punching offers an outstanding combination of manufacturing speed, punching accuracy, and versatile possibilities for secondary work stages such as forming and tapping. Moreover, short set-up times allow fast change from one job to the next.

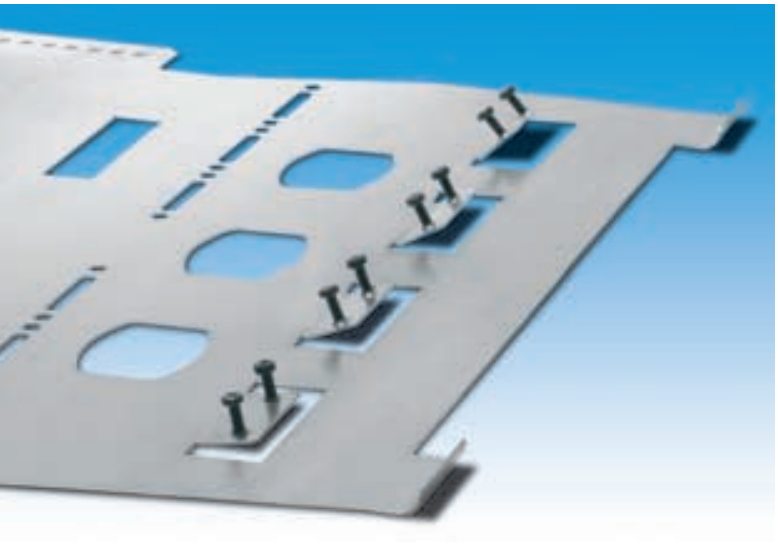
EXCELLENCE IN HYDRAULIC PUNCHING, FORMING...

New, energy saving hydraulic system

LP6 and LP8 offer a full 300 kN (33 US tons) punching force. Nibbling speed on 1 mm (0.039 ") centres is 1,000 hits per minute. As a result of digitally servo controlled ram, stroke speed is fully and individually adjustable in both directions. Other benefits include the availability of different punching modes (punch, slow punch, forming, marking, etc.).

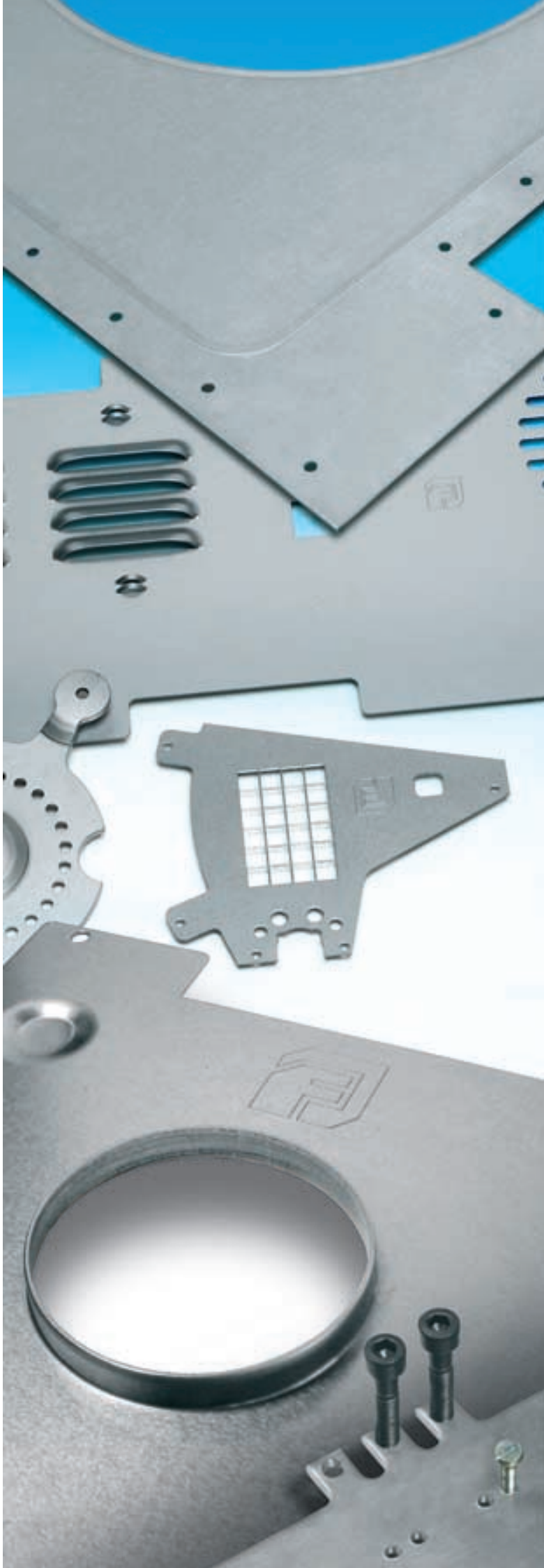
FINN-POWER's servo hydraulic punching system automates overload protection and provides the greatest flexibility for all kinds of punching, forming and special applications, like wheel, tapping etc.

The new F4 technology also offers low noise levels on hydraulics (67 dB). Electric consumption and connection power meet today's demands, and punching accuracy is brought to a new level (repeatability ± 0.025 mm / ± 0.001 ") with servo hydraulic punching and fully digital punch control and measuring.



Low on maintenance

In the LP6 / LP8 construction, special care has been taken to ensure as easy access to service points as possible. The need for maintenance is reduced by central lubrication, which is included as standard. The hydraulic oil quantity has been reduced by 50 %; consequently, savings are generated by smaller oil maintenance costs.



Very fast – highly productive – easy to operate

… high speeds…

With traversing speeds up to 150 m/min (5,905" /min), a modern turret punch press is a highly efficient machine tool. Yet, punching accuracy has not been compromised. In nibbling, hit speeds up to 1,000 hpm can be achieved. The speed of the marking mode is 3,000 hpm.

… tool change…

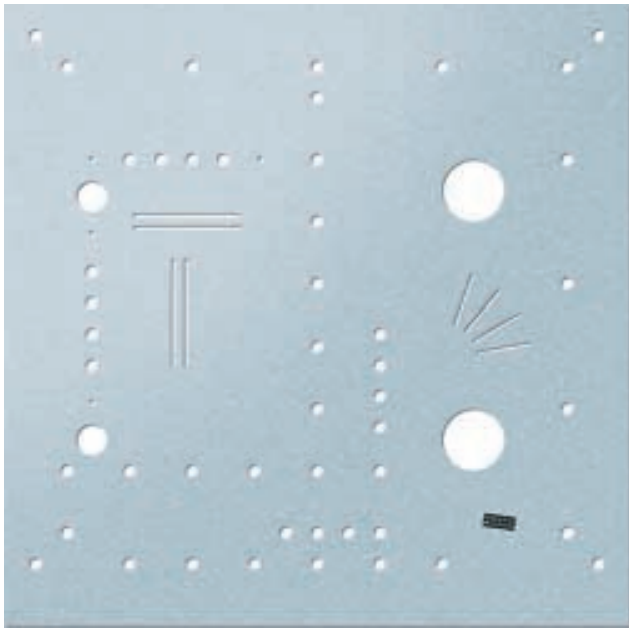
Tool change times 1…3.0 s translates to optimum usage of versatile turret layout.

Easy load features

Whether you are processing small, pre-cut sheets or full size material, sheet loading takes place with a simple push and always close to the table edge with four optimally positioned gauge pins. The loading cycle has been designed for optimum operator ergonomics. Sheet supports rise up from the table to allow easy positioning of heavy sheets, and automatic fasten the sheet. Manual loading is made easy even with automation devices added to the system.

Tested accuracy

FINN-POWER's excellent positioning accuracy is the basis of high component quality. The accuracy of every machine is clearly defined, tested and certified according to our LKP 7300 factory standard.



EXTREMELY VERSATILE AND ECONOMICAL

Customized turret layout

LP6 has 20 tool stations. Up to 10 Auto-Index, Multi-Tool® and other 89 mm (3.5") stations can be installed. Most leading tooling styles can be used. With the use of Multi-Tools®, in excess of 100 tools can be utilized.

Fast auto-index system

Up to 10 large index stations (88.9 mm / 3.5") and even 80 indexable tools with R Multi-Tools® can be installed.

The fast auto-index system is based on an AC servo motor; the rotation mechanism of the punch and die is mechanically engaged and disengaged vertically. Tool rotation can be programmed in 0.001° increments and throughout the 360° rotation. The system automatically selects the shorter path to desired angle. Tool rotation speed (max.) is 166 rpm.

Full tonnage and punch speeds can be used in any station, with any tool size.

Automatic clamp setting and moving

FINN-POWER's patented programmable automatic clamp positioning eliminates the need for clamp protection areas as well as manual clamp set-up. The machine is therefore ready for another job in a matter of seconds. Programmable clamp setting allows 100 % material utilization. PCS also enables an individual clamp to be moved during the program. This feature eliminates dead zones and allows virtually 100 % of the material to be utilized with no compromise to part accuracy as the sheet remains fixed by the other clamps.

The LP6 / LP8 is equipped with 3 clamps as standard but an optional 4th sheet clamp for better grip and additional support for large sheets can be added any time.

Indexable upforming

The safe and natural solution for sheet metal forming is from below the sheet. Using a hydraulically actuated die holder and die movement, the common hazard caused by conventional, high forming dies – scratching of the sheet, collisions, bending of the components, etc. – is automatically avoided.

With indexing possibilities the sheet can be used more effectively and at reduced tooling costs.

With the optional upforming unit, versatile forms up to 16 mm (.63") in height (incl. sheet thickness) can be created.

Tapping

FINN-POWER options can be added to increase the number of work stages that LP6 can perform, thus eliminating the need for separate machines and manual work stages. A six-station servo driven tapping unit (option) can be installed for extensive threading capacity. Alternatively, a one-station unit utilizing the fast index system and accurate ram control is available.

...and much more...

Further options available include UPS and RAID system for cell control computers, a heat exchanger, an electronic transformer, and an EMC/RFI filter, which prevents eventual voltage peaks and unwanted electric distortions from reaching the machine. For scrap removal, several types of conveyors and a vacuum suction unit can be chosen.

EXCELLENCE IN LASER CUTTING...

Laser processing

The diffusion cooled Rofin Slab laser with 2,500 Watt laser power allows the processing of a wide range of materials used in a sheet metal workshop. Slab lasers have proven reliability in thousands of installation in manufacturing industries.

This compact and high-efficient solution offers laser power with excellent mode structure (K-factor is 0.9 or better). This allows cutting speeds comparable to more than 3,000 Watt laser power in conventional laser types.

Diffusion cooled laser does not require moving parts like a turbine. This results in extremely low stand-by electrical power consumption, and service requirements are low. The integrated gas bottle eliminates the need for auxiliary resonator laser gas installation. Low gas consumption creates major savings one gas bottle per year.

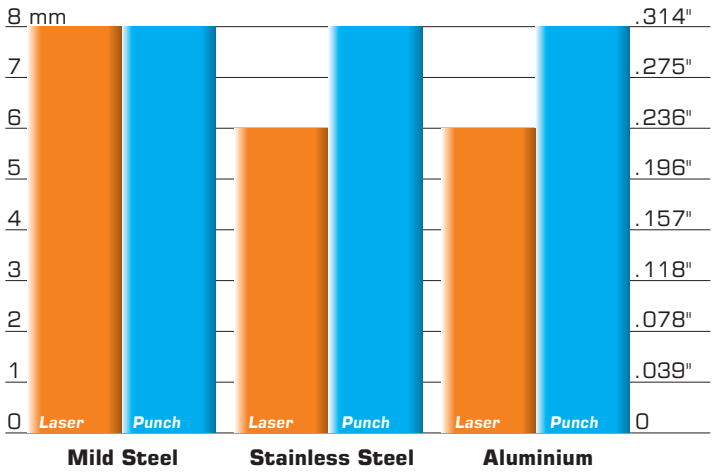
The laser and the beam delivery system are built into the system on an rigid and completely isolated frame support.

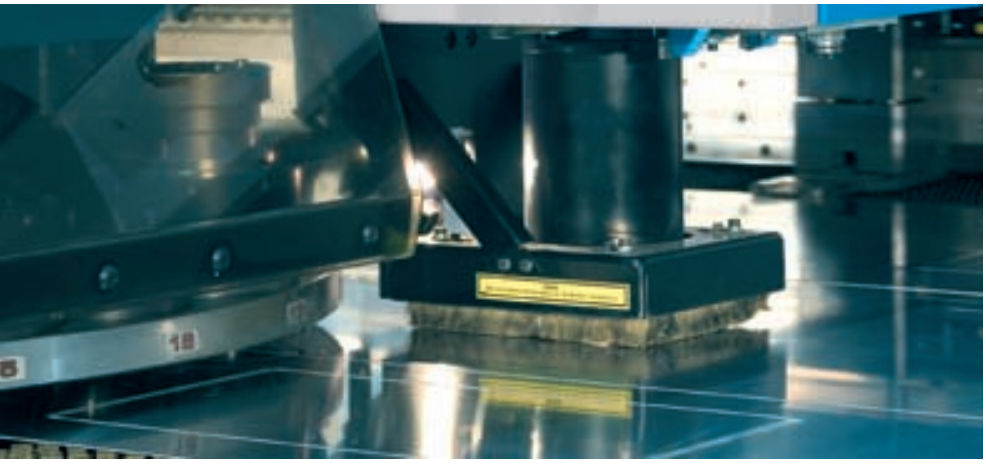
To avoid heavy shocks from other devices than the turret punch press, the system is equipped with special isolation dampers. This guarantees the highest laser beam stability and accuracy.

The high-quality laser beam is guided via two mirrors onto the focussing lens, which is mounted into a high pressure autofocus cutting head, featuring a capacitive (non-contacting) measuring system, automatic fast calibration, and connection for different cutting assist gases with fully automatic regulation.

Due to the intelligent quick-change cassette system of the cutting head, a new or different focusing lens can be changed by the operator in seconds.

Material Thickness Range





Laser cutting head

Diffusion cooled CO_2 SLAB Laser

EXCELLENCE IN USER FRIENDLINESS

ControlLink and laser parameter manager

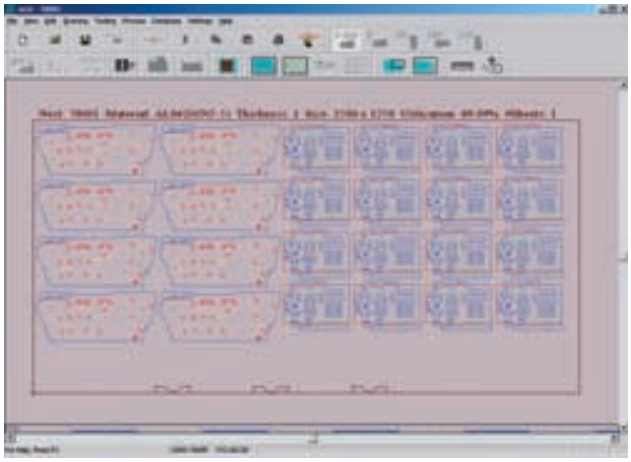
The WINDOWS® based operator interface software, installed on an industrial PC with PENTIUM® processor technology has been developed by FINN-POWER to support the operator in several ways facilitating self-learning possibilities, giving recovery instructions and simple access to electronic manuals etc. This multi-tasking control provides easy access to NC programs, tool, or forming parameters and the laser parameter manager, etc.

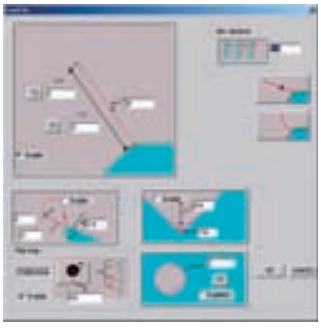
The system allows work preparation, tool management, and setup while the machine is running; thus minimizing the time between jobs.

FINN-POWER's solution for controlling laser processing and cutting parameters features a database for storing a practically unlimited number of combinations of laser parameters for various materials. All the operator has to do is specify the material and sheet thickness and the system automatically determines the parameters needed for proper part processing.

Sophistication in software

FINN-POWER is also a pioneer in multimedia machine diagnostics that provide extensive support to the user in graphical format. The multimedia based, integrated diagnostic system helps the operator monitor the different machine functions and quickly identify and correct possible operational unstabilities.





By using the Teleservice option, the Siemens Sinumerik 840D CNC control can be connected directly to FINN-POWER's customer support organization for diagnosis and analysis of the entire system.

The remote monitoring optional feature provides a connection between the system and a remote monitoring station where the current machine status is readily available. The data available include: program in progress information, operational status of different system components, active alarms, and others.

FINN-POWER also offers the option of Alarm Text Messaging to GSM. The GSM message of system is able to send text messages to the operator's GSM telephone in case the machine stops during an unmanned operation period. Continuously monitored system status is guaranteed for highly productive manufacturing. (Available only when GSM network is present.)

EXCELLENCE IN AUTOMATION

FINN-POWER's extensive experience in integrated manufacturing solutions is obvious in the compact overall design of the LP6 cell. It allows flexible automation of the material flow for added productivity.

FINN-POWER started automating the material flow in sheet metal processing 20 years ago. The first step being of automation is loading and un-loading.

Today, FINN-POWER´s modular system allows full automation of the entire material flow. The equipment is custom engineered from a range of standard modules to meet exactly the specific requirements of your production.

In the area of material handling of laser cut components, FINN-POWER has one of the most versatile sorting and stacking solutions in the market. These modules completely automate this section of the material flow – even for complex nests.

True to FINN-POWER's application oriented de-sign principle, our modular range consists of a number of solutions that, essentially automate the following steps in the overall material flow:

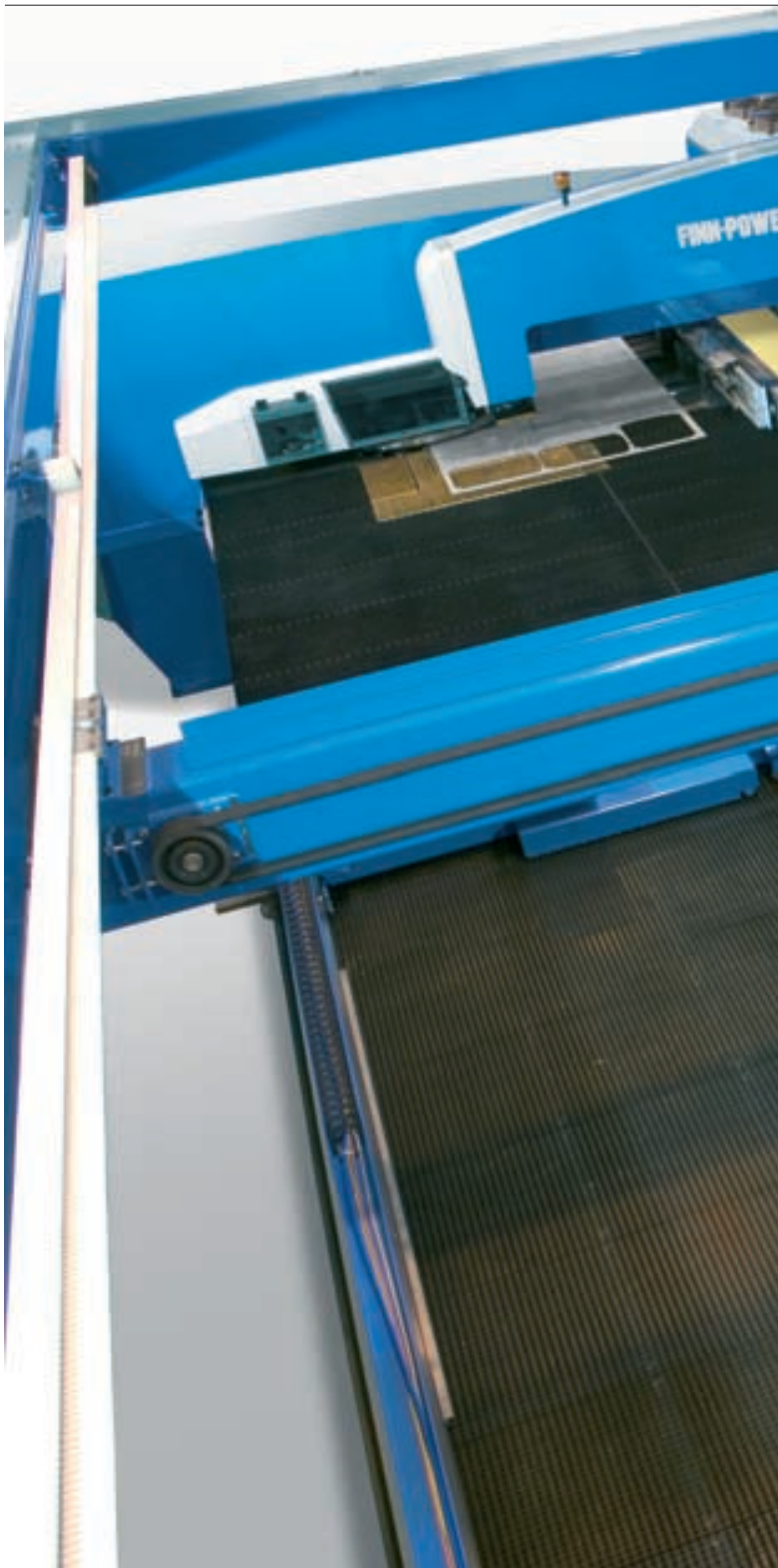
- Automatic loading and unloading
- Scrap removal from punching and laser cutting outside the system
- Sorting of small parts into sorting boxes
- Sorting and stacking of components onto FINN-POWER stacking robot
- Integration into FMS storage and material handling systems.

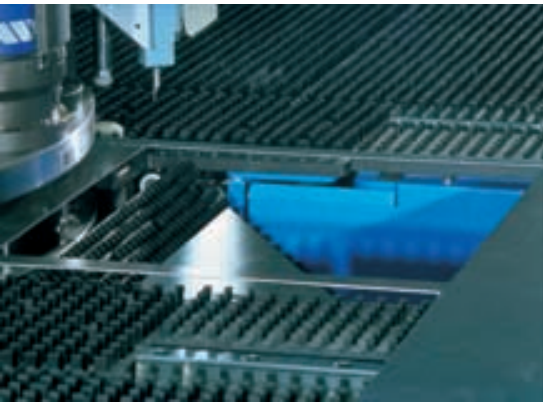
FINN-POWER LP6 features a unique part removal solution using three different, sensor monitored, drop doors to guide parts outside the machine area:

- a drop door for punched parts (500 mm x 500 mm / 19.7" x 19.7")
- two drop doors for laser cut parts (300 mm x 400 mm /11.8" x 15.7" and 800 mm x 800 mm / 31" x 31")

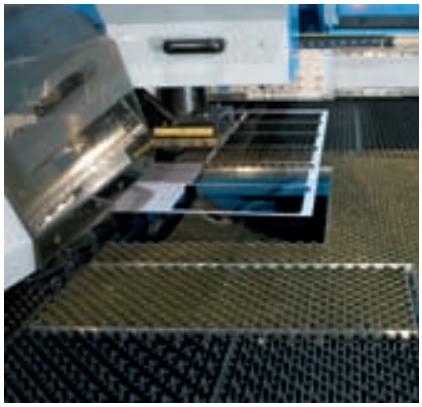
A laser scrap conveyor with automatic scrap sorting function is a standard feature in the LP6 highlighting the comfortable use of the system.

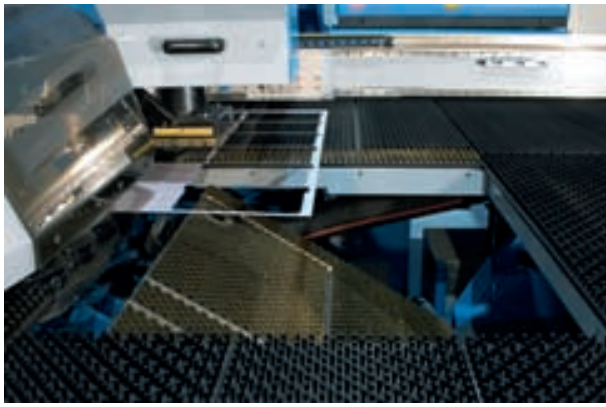
Sorting of small pieces into sorting boxes





Drop door for punched parts





Two drop doors for laser cut parts

LP6 with LSR – robot solution for loading, unloading and high precission stacking

MODULAR RANGE OF SOLUTIONS TO AUTOMATE YOUR MATERIAL FLOW

JUST SOME OF OUR SOLUTIONS...

FINN-POWER solutions for automating punch-laser combination systems are designed to optimize productivity:

LP6 Express – FINN-POWER Express – automation for FMU or system integration consisting of a loading and an unloading device with a wide range of optional tables for loading and unloading the sheets.

LP6 LST – FINN-POWER LST – easy solution for loading and component sorting including an unloading device. There is a choice of two models available long and short as well as optional table versions for the individual devices.

LP6 LSR – FINN-POWER LSR – robot solution for loading and high-precision stacking. This 5 axis, high-performance loading, unloading and stacking robot is designed for comfortable operation, versatile part stacking and small floor space requirements.

FINN-POWER IN BRIEF

***FINN-POWER Oy** and its worldwide network of subsidiaries and representatives specialize in advanced sheet metal working technology. The company was established in 1969.*

Following the introduction of its first hydraulic turret punch press in 1983, FINN-POWER has developed a modular product range for:

- ***punching***
- ***laser cutting***
- ***punch/shear***
- ***punch/laser***
- ***bending***
- ***automation of the entire material flow.***

Flexibly yours®

FINN-POWER

FINN-POWER GROUP

Global Headquarters & Manufacturing

Finn-Power Oy
P.O. Box 38
FI-62201 Kauhava
FINLAND
Tel. + 358 6 428 2111
Fax + 358 6 428 2244
www.finn-power.com

Sales & Service Units

Benelux

Finn-Power N.V.
Leenstraat 5
B-9810 Eke-Nazareth
BELGIUM
Tel. + 32 9 382 9030
Fax + 32 9 382 9031

Canada

Finn-Power Canada, Ltd.
1040 Martingrove Road, Unit 11
Toronto, Ontario
M9W 4W4
CANADA
Tel. +1 416 242 4431
Fax +1 416 242 7867

China

FINN-POWER
Representative Office
1/F, Block 1,
Golden Dragon Ind. Centre
152-160 Tai Lin Pai Road
Kwai Chung, N.T.
Hong Kong, P.R. CHINA
Tel. + 852 2427 7991
Fax + 852 2487 5548

Finland

Finn-Power Oy
P.O. Box 38
FI-62201 Kauhava
FINLAND
Tel. + 358 6 428 2111
Fax + 358 6 428 2083

France

Finn-Power S.A.R.L.
13, avenue Condorcet,
F-91240 St Michel-sur-Orge
FRANCE
Tél. + 33 1 69 46 55 80
Fax + 33 1 69 46 55 81

Germany

Finn-Power GmbH
Lilienthalstr. 2 a
Isar-Büro-Park
D-85399 Hallbergmoos
GERMANY
Tel. + 49 811 55330
Fax + 49 811 1667

Italy

Headquarters & Production

Finn Power Italia srl
Via Finlandia, 2
37044 Cologna Veneta (VR)
Tel. +39 0442 413111
Fax +39 0442 413199

Sales & After Sales

Finn Power Italia srl
Via Denti, 38
25020 Cadimarco di Fiesse (BS)
Tel. +39 030 9506311
Fax +39 030 9506340

Spain

Finn-Power Iberica, S.L.
Ctra. Molins de Rei-Rubí,
km. 13,5 Nave 5
08191 – RUBÍ (Barcelona)
SPAIN
Tel. +34 902 302 111
Fax +34 902 302 112

United States

Finn-Power International, Inc.
710 Remington Road,
Schaumburg, IL 60173
USA
Tel. + 1 847 885 3200
Fax + 1 847 885 9692

For world-wide FINN-POWER Sales & Service representation, see www.finn-power.com

Item 1145, FINN-POWER LP6 © Finn-Power Oy, 9.2007. Subject to changes without prior notice.