

FINN-POWER

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



**SHEAR BRILLIANCE[®]
MOVING FORWARD IS
A LINEAR MOVEMENT...**

SHEAR BRILLIANCE® BY FINN-POWER OPENING THE NEXT ERA IN INTEGRATED MANUFACTURING

Like all technologies, sheet metal working develops in consecutive stages, solution after solution being first introduced, then adopted by proactive manufacturers and later established as a "standard" solution.

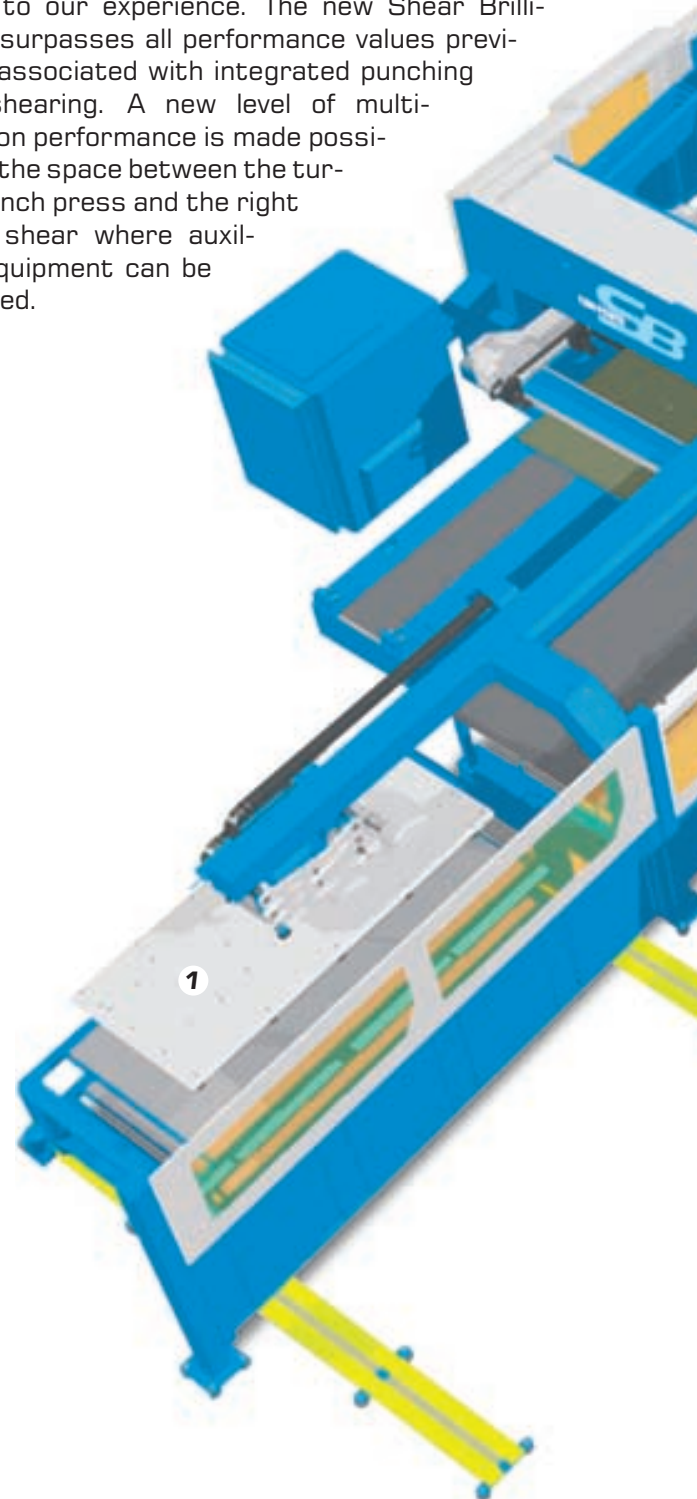
During FINN-POWER's pioneering years of major contributions to this technology such consecutive stages can be easily seen; here are just some:

- ▶ *hydraulic punching 1983 -*
- ▶ *automated material management 1985 -*
- ▶ *integrated right angle shear 1987 -*
- ▶ *servo-hydraulic punching 1000 hits 1994 -*
- ▶ *linear drive applications 1999 -*

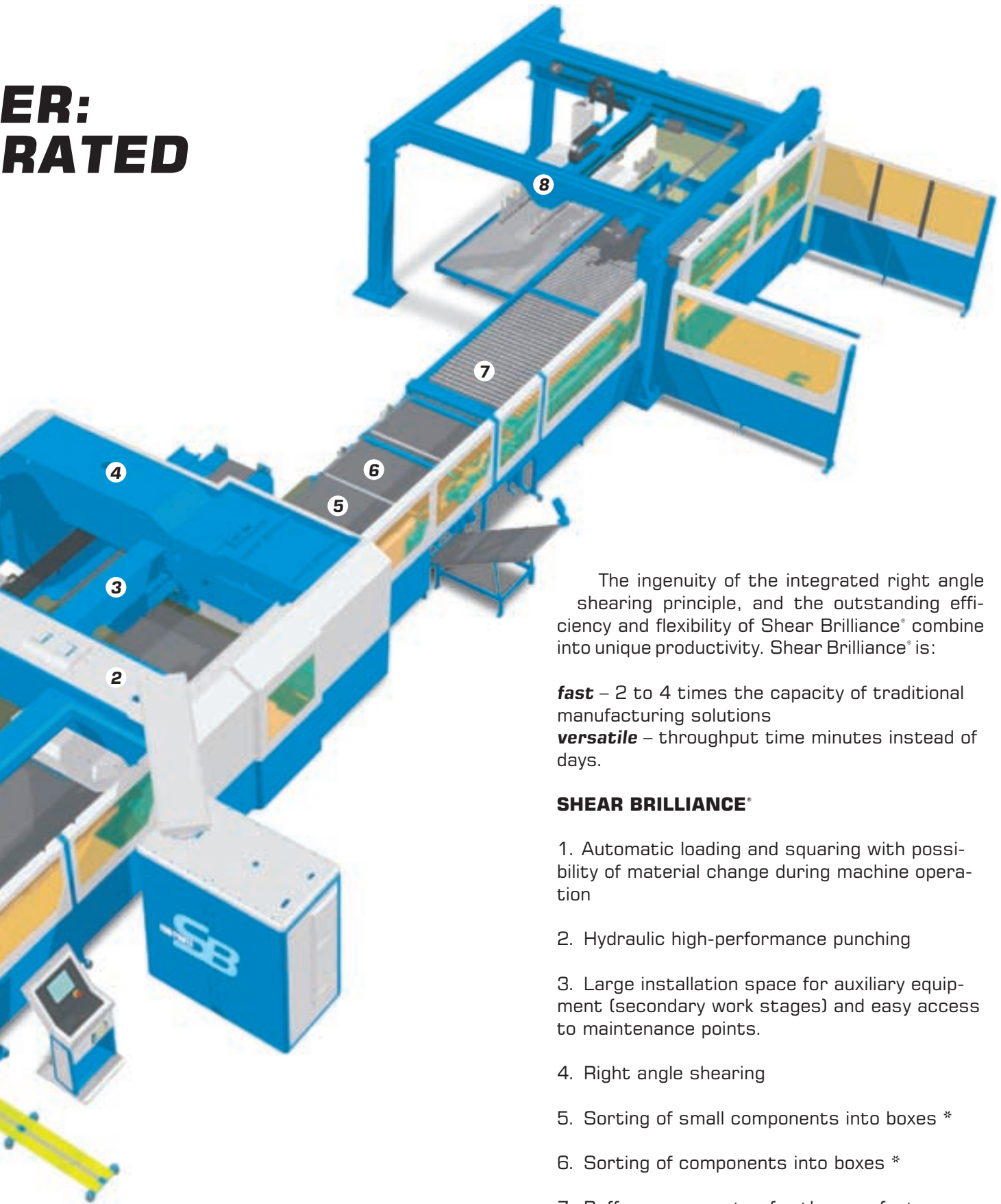
By combining the self-evident benefits of an integrated right angle shear, and the exciting speed, accuracy and unlimited distance of travel offered by the latest in linear drives, the time has come for yet another technological stage, enhancing the manufacturers' possibilities of more productive, faster and more accurate operation.

Moving forward is a linear movement

Launching the record-breaking FPL6 flying optics laser 1999, FINN-POWER has now applied linear drive technology to the integrated shearing concept where no other manufacturer can come close to our experience. The new Shear Brilliance® surpasses all performance values previously associated with integrated punching and shearing. A new level of multi-function performance is made possible by the space between the turret punch press and the right angle shear where auxiliary equipment can be installed.



ER: RATED



The ingenuity of the integrated right angle shearing principle, and the outstanding efficiency and flexibility of Shear Brilliance® combine into unique productivity. Shear Brilliance® is:

fast – 2 to 4 times the capacity of traditional manufacturing solutions

versatile – throughput time minutes instead of days.

SHEAR BRILLIANCE®

1. Automatic loading and squaring with possibility of material change during machine operation
2. Hydraulic high-performance punching
3. Large installation space for auxiliary equipment (secondary work stages) and easy access to maintenance points.
4. Right angle shearing
5. Sorting of small components into boxes *
6. Sorting of components into boxes *
7. Buffer compensates for the very fast right angle shearing.
8. Freely programmable sorting and stacking of components onto pallets *

* material management options

SHEAR BRILLIANCE®: ENGINEERED TO PERFECTION FOR MAXIMUM PRODUCTIVITY

Multi-function manufacturing solution

The combination of a very long X traverse, four clamps and the extremely high positioning speed allowed by linear drives means that more functions – punching, forming, tapping, marking, and shearing – can be performed flexibly as a single, multi-purpose work stage and with a single clamping. No auxiliary time is wasted in clamp repositioning during the process. This means that the range of components that can be produced on one and the same equipment is truly vast.

Double capacity + double versatility?

In Shear Brilliance®, the inherent downtime in most integrated manufacturing solutions has either been eliminated or reduced to the barest minimum.

There is no need for reclamping and sheet positioning is extremely fast. A major contributing factor is the fact that many operations are performed simultaneously. Thus, sheet loading takes place while the right angle shear still operates on the previous sheet, and, in systems with automated material management, component stacking is possible while punching the next sheet.

In other words, Shear Brilliance® is capable of more work stages with less waiting time between them. Depending on component geometry, manufacturing time reduction of 30 % - 60 % has been recorded in comparison with traditional manufacturing solutions and much more work stages at the same time.

Shear Brilliance® for Accuracy

Accuracy is retained on a very high level as also shearing is performed without re-clamping. In addition to speed, linear drives ensure excellent positioning and, consequently, accuracy of each work stage performed. A further factor contributing to accuracy is the actuation of Y move-



*ASD =
Active
Synchronized
Drives
for
brilliant
accuracy*





ment through two, parallel and synchronised linear drives which have been mounted at a considerable distance from each other for maximum accuracy. This Active Synchronised Drive (ASD) principle ensures minimum deflection of coordinate table even when heavy sheet is being positioned at maximum acceleration / deceleration values.

More Tooling Capacity



Shear Brilliance® features a totally new turret with more tooling capacity. Compared with the well-known, standard FINN-POWER 20-station turret, Shear Brilliance® has 30 tool stations. Thus using Multi-Tools the versatile capacity of up to 200 tools can be made simultaneously available. Turret layout can be customized.

New, very fast index mechanism



Shear Brilliance® also has an entirely new, two-motor index mechanism. Both acceleration rates and rotation speed are far superior to previous constructions.

Auxiliary Functions

The more different work stages can be performed on a single machine tool, the more versatile and productive the manufacturing solution is. There is a wide space between the turret punch press and the right angle shear which can be utilized for installing equipment for forming, tapping and marking.

Easy Maintenance

All machine tools require maintenance. The search for compact constructions has often lead to technical solutions where service points are hard to reach.

In Shear Brilliance®, the separation of the turret punch press and the right angle shear allows fast, easy and safe access to service points.

Shear Brilliance® is equipped with central lubrication and lifetime lubrication units to eliminate machine operator time wasted in weekly maintenance.

Sophisticated Programming Systems

NC-Express, the standard programming system for integrated punching/right angle shear machines, supports also Shear Brilliance® with its advanced, yet user-friendly features.



MODULAR SOLUTIONS FOR TOTALLY AUTOMATED MATERIAL FLOW

Automated material flow – vast increase in productivity

In addition to the integrated shearing concept, another FINN-POWER commitment since 1980's has been one to automatic material management. The company can now automate the entire material flow through all work stages it concentrates on: punching, laser cutting, punching integrated with either laser cutting or right angle shearing, as well as bending by a roboticized press brake or an automatic bending cell. True to this tradition, also the new Shear Brilliance® can be equipped with a complete material management solution as well as integrated in the factory-wide Night Train FMS®, the leading sheet metal FMS.

Specifically for Shear Brilliance®, the following options have been developed and incorporated in standard product range to allow application-specific material flow:

Loading

When Shear Brilliance® is used as an independent manufacturing cell, either one or two movable loading tables can be chosen. The use of two transferrable wagons allows the loading of a new sheet stack while the machine operates. Sheet positioning is performed on the loading table for more active manufacturing time. A two-table construction is available which can be installed on either side of the loading point. Connection possibility with an automatic material storage type CS adds to possibilities of unmanned operation and versatile material change. Similar loading arrangements are available for solutions where Shear Brilliance® is integrated in a Night Train FMS®.

As a standard feature, Shear Brilliance® has sheet squaring and a double sheet detector integrated with the loading gripper to ensure unmanned production without interference.

Sorting

There are two alternative sorting solutions which can be chosen.

- Sorting conveyor C/1500 with 1 - 5 sorting positions into boxes placed below the conveyor.



Sheet squaring and integrated double sheet detector

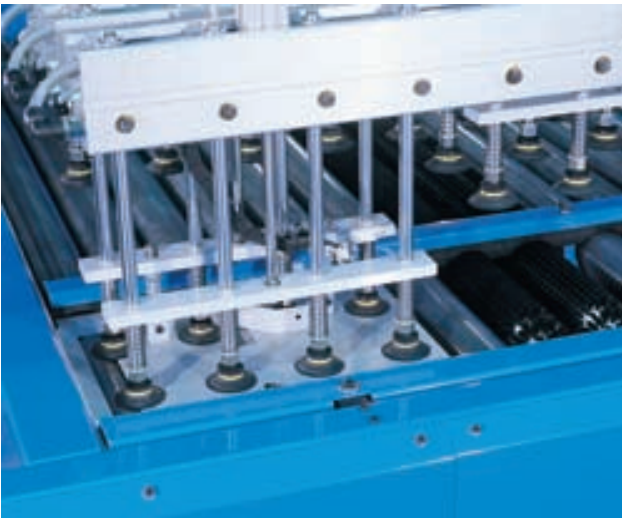




- SUB 8 with 8 sorting boxes for small components.

Buffer storage

The very fast operation of the right angle shear can be compensated for by adding a buffer storage between the right angle shear and stacking robot. A buffer with 10 shelves operates as fast as the machine. The storage is emptied later during the punching of the next sheet, when the robot is free to do this after loading.



Stacking

The robot stacks workpieces on either 1 or 2 movable stacking wagons; stacking patterns can be freely programmed. Suction cup grippers maintain high surface quality. The numerically controlled 4-axis stacking ensures excellent stacking accuracy and surface quality. Stacking solutions are available both for independent manufacturing cells and for Night Train FMS®.



Flexibly yours®



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