

The NEW EDGE

Seco news and views from around the world

NO 1 – 2004

TP1000 – The first of the new 'triple zero' grades



The new Seco TP1000 turning grade has solved serious machining problems at AP-Tela Oy, Kokkola, Finland. This company machines large workpieces made of nodular martensitic cast iron - a difficult material used for products such as rolls for the paper industry.

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From left, Juha Piiparinen, Seco salesman in the region, Keijo Manner, Managing Director and Sales Manager at Seco in Finland, Kari Harju, Works supervisor, Juha Kivelä, Production Manager and Pekka Viitasalo, Managing Director of AP-Tela Oy.

The workpiece is a pulp washing centre tube.

Once a champion...



Michel, father Vuilleumier and son Patrick, founders and owners of Vuilleumier Technology AG.

Patrick Vuilleumier was the first Swiss world champion in CNC Machining in 1989 in Birmingham, UK. 13 years later he, together with his father and brother, are running one of the most modern engineering plants in the world. EPB shrink-fit technology and Seco milling tools were selected, from amongst others, to achieve this position. The Vuilleumier company was also chosen by the machine producers, Hermle, as a reference and test shop.

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Europe's most modern workshop?



His father began making horseshoes back in 1918. Grandson Inge Brig Aarbakke has now built a modern workshop in Bryne on the west coast of Norway.

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International magazine for the Seco Tools Group

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**Componenta Wirsbo AB, Kolsva
Sweden**

TP1000 and TP2000 Seco turning inserts last up to three times longer

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The drop forging before machining.

Componenta Wirsbo produces 240 000 shafts annually in its Kolsva plant. The end customers are several large truck manufacturers, including Volvo and Scania. The shafts are rough machined in four-axis lathes, and two turning tools cut simultaneously in the first operation. Grade TP1000, CNMM 190624-57 inserts are fitted to one of the toolholders, and grade TP2000, DNMM 150616-R4 inserts to the other.

As subcontractor to the automotive industry, Componenta Wirsbo AB is often subjected to price pressure and keen competition. One way of meeting these challenges is to use efficient tools for the machining operations.

“The new Seco turning grades have literally caused a revolution,” says Mattias Jansson, Production Leader at Componenta Wirsbo.

“TP1000 and TP2000 last up to three times longer than competing grades,” he says.

The workpiece material is a quenched and tempered grade SS2234 steel from Imatra, which is in material group 4 in the Seco material classification. The blank is produced by drop forging and is quenched directly from the forging temperature, which results in a hardness of 280 HB. The workpieces are then tempered and blast-cleaned.

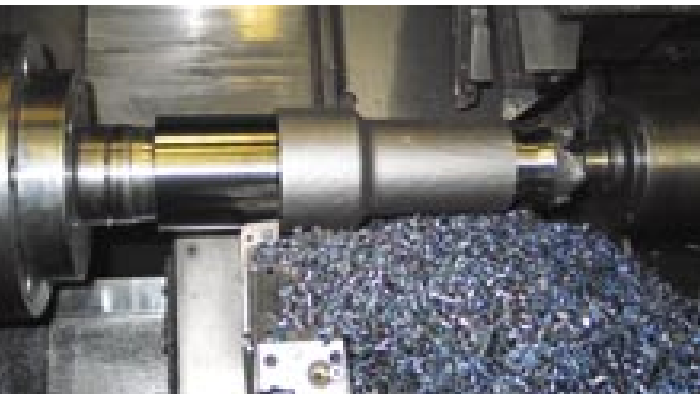
The new Seco TP1000 and TP2000 turning grades have led to a drastic cut in machining costs. In the following

TP2000 inserts last up longer!



Drop forging in progress.

The glowing workpiece is now immediately quenched and then tempered.



The TP1000 insert machines from the left, and the TP2000 from the right.



The rough machining operation has been completed.

example, a shaft is rough machined in a four-axis lathe, in which two tools cut simultaneously. A grade TP1000, CNMM 190624-57 insert is used in one of the toolholders and a grade TP2000, DNMM 150616-R4 insert in the other.

Two different grades are used in an effort to achieve balance between all operations, so that a machining period lasting about 1.5 hours can be completed without interruption. One of the operations requires the weaker DNMM insert form for copy-turning of the rough surface. The tougher TP2000 grade can manage this operation with better security, while the cutting speed on this part of the workpiece is lower and the wear time is therefore sufficient to achieve the objective.

In the other operation, the much stronger CNMM insert form is used instead, and the required wear time can be achieved with the more wear-resistant TP1000 grade, even though the machining length per operation is much greater. So the two grades complement one another perfectly.

The workpiece rotates at 400 rpm. For the operation using the TP1000 insert, the cutting speed is therefore 140 m/min, the feed rate is 1 mm/rev, and the depth of cut is 5.5 mm. The cutting speed is 140 m/min, the feed rate is 0.8 mm/rev and the depth of cut is 0.3 mm.

“Uniform and stable production is essential,” says Mattias Jansson. “The main customers are Meritor and Ferriform, both of which are subcontractors to companies such as Volvo and Scania.”

Componenta Wirsbo has operations in the Swedish towns of Visbo, Kolsva and Smedjebacken, and the company has a total of 240 employees. The Componenta Group has its headquarters in Helsinki, Finland, and the Group has 1700 employees. The turnover is euro 200 million. The Group consist of 20 companies with a customer base located mainly in Europe.



Mattias Jansson, Production Leader at Componenta Wirsbo in Kolsva.

Power Turbo:

Feed rate doubled, feed speed trebled, results quadrupled.

Since its foundation in 1926, the GROB Group has developed into an internationally operating manufacturer of machining centres, special-purpose machine tools, assembly lines, automation equipment, flexible systems and innovative customized systems. The parent company is based in Mindelheim in Bavaria. Other factories are located in USA and Brazil. There are also GROB service and sales branches in Mexico, Great Britain and China, as well as agencies in almost all the industrial countries of Europe, including the Czech and Slovakian republics.



Production problems are part and parcel of everyday routine. Possible solutions are discussed jointly: (from left): Ernst Drexel and Günther Frühschütz (GROB), Ulli Ostheimer (Seco).

The GROB Group offers all services connected with the machining process, from planning and production through to the actual machining of parts and their assembly. The company specializes in the manufacture of machines for use in the automotive industry, especially machines for the machining of components for engines and gearboxes.

The Mindelheim works recently had the problem of producing a side upright in St37-2 for a machining centre. The particular problem lay not only in the fact that the workpiece was thin-sectioned and hence unstable but also in the required intermittent cutting operation. At first, a Turbo Mill fitted with the indexable insert APKX 1604PDR-ME11 in T25M was used for the roughing of grooves. For a depth of cut of 4–7 mm and a feed speed of 530 mm/min., only one part was machined within a tool life of 45 minutes. Naturally, this result was anything but satisfying. Added to this was the fact that vibrations occurred on account of the relatively low cutting data. The Super Turbo, on the other hand, operated considerably more smoothly and was generally an improvement as regards vibrations. All the same, two cuts were still necessary using the 12 mm indexable insert. Consequently, the new challenge was to reduce the machining time, increase tool life quantity and improve production reliability.

The new Power Turbo from Seco came to the rescue just at the right time. Like all Turbo Mills, the new Power Turbo is super-positive and particularly light-cutting. Moreover, it is fitted with the very sturdy indexable inserts XOMX 180606TR, which are available in various geometries and carbide grades.

For the initial tests, Seco's sales engineer Jochen Obenaus used the 63 mm diameter Power Turbo. He also selected the stronger geometry M14 and the carbide grade F40M, which had already proved to be the ideal grade in cases where there is the possibility of vibration.

Thanks to the stronger geometry and the thicker indexable insert, the cutting data were now considerably improved. That is to say, the cutting speed was increased by 50%, the feed rate was doubled and the feed speed was trebled. The depth of cut of 13 mm was easily achieved in one single cut. The machining time could be reduced from 45 minutes to 12 minutes. The tool life of 48 minutes per cutting edge permitted the machining of four parts.

Needless to say, the machining experts at GROB were now more than satisfied. Günther Frühschütz, a man with many years' experience and responsible for tool purchasing and optimization, says: "We are now using only the 63 mm diameter Power Turbo. It's working fantastically, and there are no vibrations. In spite of the extremely positive axial angle there is no corkscrew effect, not even on this very unstable workpiece." And Seco's Ulli Ostheimer adds: With workpieces like this you've got to be very careful – too



Heribert Seitel, Production Manager at GROB, has known Seco for many years.

much power is often too much of a good thing.” Following its excellent performance in the tests, Power Turbo is now being used in large-scale production.

Seco has been on good terms with GROB for many years. Everybody knows each other and production problems are discussed and solutions tested in an atmosphere of friendliness and trust. In the final analysis, however, it is the satisfaction on both sides which really counts.



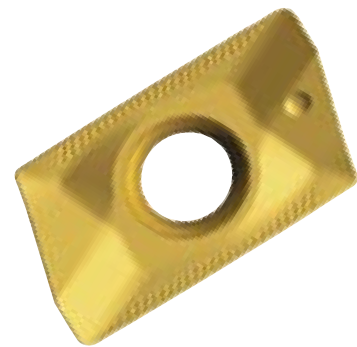
This side upright has been successfully machined with the Power Turbo.

Power Turbo

Power TURBO with strong 18 mm super-positive inserts, is the newest addition to the Seco TURBO square shoulder milling system.

This range of heavy duty cutters is designed to take on your toughest materials and most demanding operations.

Power TURBO cutters are available in both cylindrical shank and arbor/shell configurations in diameters ranging from 32 mm to 160 mm with depth of cut capabilities up to 17 mm. Also available in normal and close pitch.



Power TURBO cutters can use the full range of Seco insert grades including the new T200M and T350M grades and geometries to match milling performance precisely to application requirements.

And, as part of the Seco TURBO system, Power TURBO cutters can ramp, slot, pocket, and handle circular and helical interpolation in addition to traditional square shoulder operations.

Power TURBO cutters deliver an energy saving, free-cutting action that works with proven Seco insert geometries.

The strong and rigid insert retention capability of the big TorxPlus® screw allows high metal removal rates even in difficult operations.

Teamed with Seco's new T350M super-smooth coated inserts, for example, Power TURBO cutters provide outstanding productivity even in sticky stainless steels and hard-to-machine superalloys.

World skills champion 1989

13 years later still world champion with his own company

Patrick Vuilleumier was the first Swiss world champion in CNC Machining in 1989 in Birmingham, UK. 13 years later Patrick together with his father and brother, are running one of the most modern engineering plants in the world. EPB shrink-fit technology and Seco milling tools were selected, from amongst others, to achieve this position. The Vuilleumier company was even chosen by the machine producers, Hermle, as a reference and test shop.



From left to right: Seco applications engineer Renato Bulfon, Patrick Vuilleumier and his father, both owners of the modern Vuilleumier plant and Silvia Baur, Seco management

Patrick Vuilleumier already showed exceptional talent as an apprentice with the Mikron company. His success at the world skills championships in 1989 confirmed what had already been known for a long time about Patrick. Just like his brother Michel, he has the extraordinary talent of carrying out simultaneous, multi-axis programming of difficult components both quickly and efficiently. This is why father Vuilleumier founded the company, Vuilleumier Technology AG, together with his two sons. Complex tasks, such as manufacturing prototypes and launching initial series runs using stainless steel, titanium, super alloys or aluminium are the present-day strengths of Vuilleumier AG.

Today, success is apparent throughout the company. With 8 new machining centres, Alpha-cam, Unigraphics and Gibbs-cam, 5 axis-simultaneous programming of complex prototypes is a daily task of the Vuilleumier brothers. Demanding customers from all parts of the world, such as from the automotive, medical and horology sectors, have

put their faith in Vuilleumier to develop an efficient cutting process.

“In order to achieve and offer really good and reliable results, you need more than just talent”, said the world champion, Patrick. “We use the most accurate Seco shrink-fit holders and a tool-saving shrinking device from Seco, EasyShrink 10, in order to achieve excellent machining results”, Patrick went on to explain.

“Flexible, safe and cost-efficient cutting tools of the best quality are also very important”, Michel added. The smallest and most precise indexable carbide milling cutter in the world, the Nano Turbo was selected as well as Minimaster



World champion Patrick Vuilleumier carrying out shrinking with the EasyShrink 10 device

and Aeromaster “the aluminium-eater”. “All these Seco cutters meet our very strict demands”, said the Vuilleumier brothers.

World champion in Milling

Beat Güller, clear winner of the 37th World Skills Championship with Seco tools



Contestants from 36 nations in 44 skills, 660 experts and 180,000 visitors from all over the world came together in the 15 Olma Halls occupying an area of 48,000 m² in June 2003 for the 37th World Skills Championship.



The world champion in CNC milling, Beat Güller, with Hans Rudolf Zürcher, senior expert at the World Skills Championship.



Beat Güller concentrating hard at the programming terminal. In the background are other contestants milling on the 10 Mikron milling centres provided.

The 37th World Skills Championships were held in St. Gallen on the four hottest days since records began in Switzerland. 680 contestants from 36 nations fought for the title of world champion in 44 skills. In CNC milling, the winner was Beat Güller of Switzerland. He is exceptionally talented, having started to learn the techniques of milling and turning at the early age of 12 years in his father's company.

As a Swiss master polymechanic, Beat Güller prepared himself for the competition in St Gallen. A world champion has to have the ability to produce maximum mechanical performance, backed by psychological strength. It is not every contestant that can perform at his peak in an extremely stressful situation while 180,000 visitors stream by. Mr. Zürcher, as the senior expert at the World Skills Championships in CNC milling, knows how important technical skill and sound professional principles are.

Zürcher and Güller stress the importance of the tools, which play a big part in winning. The professional support of Seco, as the principal sponsor with reliable and efficient cutting tools, is an important pre-requisite of victory.

As in sport, to win a world championship title, it is essential to prepare young people at an early stage and using a wide range of techniques. "The day-to-day support of Seco at the vocational colleges is important, so that training can be given in machining using the latest tools", said Mr. Zürcher, who gives practical vocational training at the apprentice workshops in Bern. At the next World Skills Championship in Finland in 2005, we shall have another opportunity to see who has the best professionals.

Below is the medal table for the 10 best countries at the 37th World Skills Championship 2003 in Switzerland:

| Country | Gold | Silver | Bronze |
|----------------|------|--------|--------|
| Korea | 10 | 6 | 8 |
| Switzerland | 8 | 9 | 3 |
| Japan | 6 | 2 | 3 |
| Chinese Taipei | 4 | 1 | 2 |
| Austria | 3 | 2 | 6 |
| Germany | 2 | 3 | 1 |
| Australia | 2 | 1 | 1 |
| Singapore | 2 | 1 | 1 |
| Ireland | 2 | 1 | 0 |

Guess who's behind machining success

Bharat Forge Ltd., the flagship company of the Kalyani Group and the second largest forging company in the world, has one of the most technologically advanced commercial forge shops. Bharat Forge is a major global supplier of automotive engine and suspension components. Leading OEMs like Daimler Chrysler, Caterpillar-Perkins, Renault Trucks, Mercedes Benz, Wuxi (China), Volvo, Lister Petter, Mitsubishi Motor Corporation and companies like Meritor Automotive and Dana Corporation (USA), amongst many others, source their complex forging requirements including machined crankshafts, front axle beams and steering knuckles from Bharat Forge. Bharat Forge is accredited with ISO 9002 and QS 9000 certification. The turnover of Bharat Forge for the year 2002-2003 was Euros 130 millions! Seco contributes to this success:

Higher productivity in the Die Shop with Seco round insert cutters:

The Die Shop at Bharat Forge is equipped with modern machining centers, which are supported by the latest software packages for die manufacturing. These machines are utilised to their maximum capacity with the latest tooling offered

by Seco to ensure a regular supply of finished dies to the Forge Shop! "The Seco round insert cutters in diameters 16, 25 and 50 mm are ensuring the highest metal removal rates in our Die shop, and at the same time we are getting a good tool performance – both on virgin and on welded dies", says Yogesh Hingane, Dy. Manager – Die Shop. "Feed rates to the tune of 6 m/min have been achieved with Seco dia 25 mm cutter and RDHW 10T3 MOT-MD06 F25M insert." Using Seco round insert cutters, the machining time in roughing has been reduced by 25% ! Even some special long reach round insert cutters have been developed at Seco Tools India to machine deep cavities.

Crankshaft Milling operations made easier by Seco tooling:

Crankshaft milling operations are carried out at Bharat Forge on GFM, Heller & Boehringer machines with specially designed cutters. The cutting conditions for the insert are rather severe with more impact on the insert at high speed. A special, local standard, coated grade has been developed at Seco Tools India for these crankshaft milling inserts. Seco also supplies six different types of cassettes for these special cutters. "Bharat Forge is currently manufacturing more than 1 million crankshaft forgings per year and machin-



L-R : Santosh Thorat – Manager Purchase; Jannu Shridhar – Sales Engineer – Seco Tools India; S.B. Naik – Sr. Manager – Crankshaft; Bharat Patwa – Regional Sales Manager - Seco Tools India; M.N. Deshmukh – Sr. Vice President; Dr. S.S. Ingle – Sr. Manager Technical Support- Seco Tools India; R. Radhakrishnan – Sr. Vice President; M. Walbekar – Sr. Manager – MCD, Sashi Menon – Application Specialist - Seco Tools India; K.Srinivasan – Sr. Manager – Engineering

India's biggest tory

ing over 50% of these“, says R. Radhakrishnan, Sr. Vice President – Manufacturing Engineering. “We are currently using more than 25 different special insert styles for crankshaft milling – all of them in a local standard grade”, says R. Radhakrishnan. He further adds, “Actually the entire crankshaft milling activity at Bharat Forge is carried out using Seco inserts thanks to their excellent performance”.

Seco Perfomax indexable drills for higher productivity:

Seco Perfomax drills in several diameters and in 2xD, 3xD and 4xD are put to productive use in drilling operations, mainly on Front Axle beams and steering knuckles. Says S.N. Palankar, Associate Vice President – Machined Component Division: “We have increased our drilling productivity by almost 40% since we started using Seco Perfomax. Even the tool life is excellent after rationalisation of the drilling insert grade to T200D (for the periphery insert) for our AISI 4040, 4035 and 4140 steel grades”

Seco customised tooling for total machining solutions:

Several non standard tools have been developed by Seco Tools India in order to provide total machining solutions.

These include both steel and carbide products. Various crankshaft milling inserts, groove milling inserts, cassettes for pin milling cutters, round insert cutters (long reach), spot facing cutters, special drills, combination tools such as drilling plus chamfering tools, taper boring cutters, special boring bars etc. have been supplied. M.N. Deshmukh, Sr. Vice President – Machined Component Division. says, “The response from Seco regarding any new development has been exemplary- as if Seco is a part of our own team.” He further adds, “Bharat Forge is currently going through a phase of explosive growth and we are relying on the services from our suppliers such as Seco to succeed in this phase”



Sashi Menon – Application Specialist – Seco Tools India; Anil Patil – Vice President – Die Shop; Rajkumar Gaikwad – Associate Vice President – Die Shop; Jannu Shridhar – Sales Engineer – Seco Tools India; Yogesh Suri – Deputy Manager – Die Shop; Yogesh Higane – Deputy Manager – Die Shop

SecoPoint cuts costs and increases efficiency

Kingsland Engineering uses SecoPoint to boost its production efficiency. The company is the leading British manufacturer of hydraulic 'Steelworkers' and 'Punching' machines; used in the fabrication, construction and sheet steel working industry – large and small, together with a huge range of punches and dies for these and other manufacturers machines.



Peter Lowagie, Managing Director of Kingsland Engineering and Colin Oakey, Seco sales engineer, with a Multi 60 hydraulic steelworker in the background.

SecoPoint saves time for the company, which now also has its tool flow under close control – assured by Seco Tools.

Kingsland Engineering has been using a SecoPoint machine for the past year. (This machine was previously known as Automatic Tool Dispensing, or ATD for short). The operators collect the indexable inserts and tools that they need from this automatic dispenser. The withdrawal is recorded directly in a computer connected to the SecoPoint. When topping up is needed, the system automatically places an order.

“This gives us a good overview of the consumption of tools and inserts,” declares Peter Lowagie, Managing Director of Kingsland Engineering. “We have never yet been short of tools, since the SecoPoint places orders as



Examples of punches for Kingsland machines

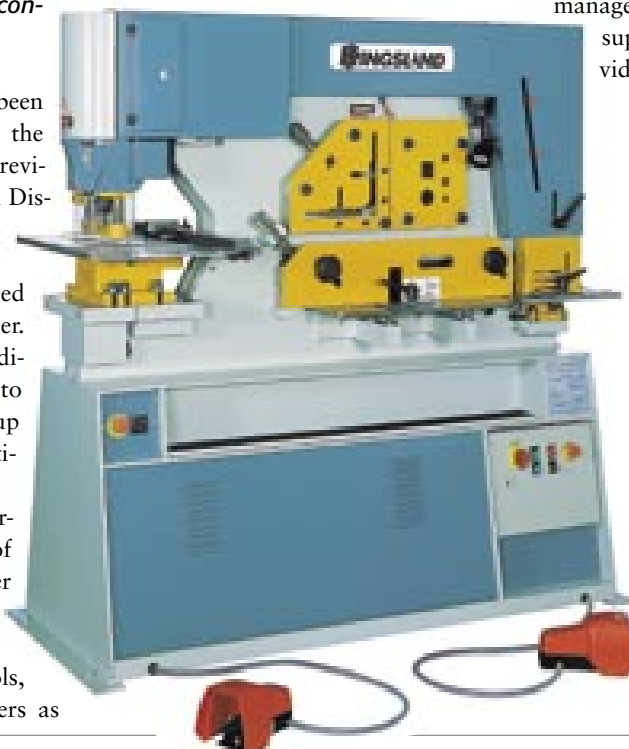
soon as the stock has dropped to a certain reorder level.”

He also confirms that the company saves a great deal of time on using this automatic machine for managing the flow of inserts and toolholders.

Kingsland Engineering Co. Ltd. was founded back in the 1940s in London. Since 1991, the company has been a member of the worldwide Haco Group that has its headquarters in Belgium. Haco has 1400 employees and is represented in 36 countries.

Kingsland Engineering produces hydraulic machines for shearing, bending and punching metal. The end users are often relatively small companies in the building industry. Kingsland Engineering now produces 25 different machines. In addition, they also produce thousands of different punches, many of which are specific to certain customers. The punches are made of DIN 2379 steel, which is in Seco material group 6. After heat treatment, the steel has a hardness of 57HRC.

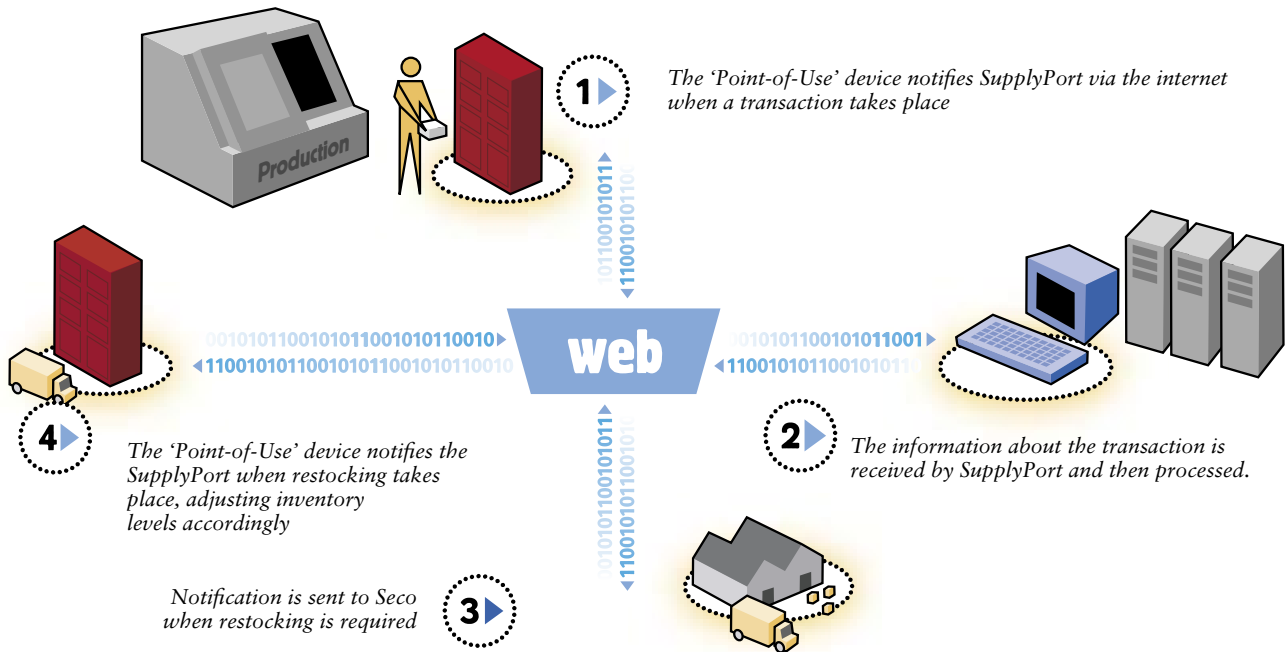
Kingsland Engineering operates in a market in which competition is stiff, and therefore needs contact with a cutting tool manufacturer who can assist with efficient tool management systems and technical support. Seco and SecoPoint provide all this and more.



The punches for Kingsland machines are usually produced using 50 mm diameter Seco R220.99 milling cutters. The inserts are SONX 12 of grades T20M and T25M. The cutting speed is 190 m/min.

SecoPoint

Automating the supply chain through 'Point-Of-Use' systems



There is a compelling movement well underway throughout the world – the movement towards automating transactions at the 'Point-of-Use'. Whether withdrawing money at a cash machine any time of day, any day of the week or paying for petrol at the pump rather than at the kiosk, these solutions and many more drive efficiencies, reduce costs and improve customer satisfaction by delivering services at the 'Point-of-Use'.

The SecoPoint system, the only truly web enabled solution on the market today, automates the processing of

tool crib and storeroom transactions at the 'point-of-use'. It controls and automates the dispensing and returning of high-use, high-cost or mission critical tools and supplies; it automates the replenishment process, calculating just the right amount of inventory required for each inventory turn. It streamlines inventory management, reduces fixed costs and has a positive impact on productivity and information flow.

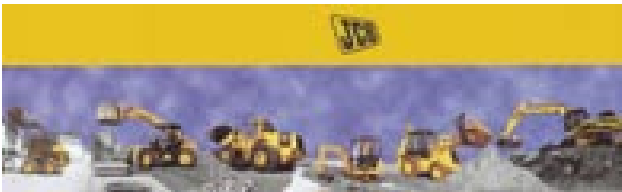
Traditional supply processes do not control the quantities issued or limit access to only certain items during a tool crib or storeroom transaction. This leads to excessive usage, hoarding, and waste. Using SecoPoint 'Point-of-Use' devices provides accountability and accuracy, with each dispense transaction being recorded and inventory levels adjusted appropriately.

Because a user ID is required with each transaction, users quickly learn that they are accountable for each item removed from the system. Reporting consumption by employee and using this information as a performance measure discourages hoarding and inappropriate use of supplies, resulting in reduced consumption over conventional inventory management systems.



Seco's Noel Alexander and Julian Adams at a Seco-Point machine.

JCB, a market leader in earthmoving machines



JCB products – the company produces a total of 130 different machine models.

The JCB Hydraulic Business Unit in Rocester, UK has switched to Seco CrownLoc drills. As a result JCB is speeding up production and cutting costs.

When drilling 300 holes with a competitor drill, the drill crown had to be reground twice. The drill was used for 17 mm diameter holes in a steel to Seco material group 5.

The Seco CrownLoc SD105 and a P geometry crown for drilling in steel enabled cutting data to be raised from 70 m/min and a feed rate of 0.21 mm/rev to 80 m/min and 0.25 mm/rev. The great benefit is that the CrownLoc can drill 300 holes without the need for changing the crown. The hole depth is 98 mm.

The CrownLoc design allows the drill crown to be changed while the drill body remains in the machine spin-

dle. Significant timesavings can obviously be achieved and very accurate repeatability can be maintained.

“This is obviously very satisfactory. We achieve the right quality and we also machine to closer tolerances by using Seco CrownLoc,” says JCB.

CrownLoc is in operation at JCB for 24 hours a day and up to seven days a week.

JCB was founded in 1945 by Joseph Cyril Bamford, when using a £1 welding set and wartime scrap, he produced a screw-tipping trailer, which he sold at the town’s market for £45. Today, JCB is one of the world’s leading manufacturers of construction, agricultural and materials handling equipment. Meticulous care is given to all the component parts in order to achieve the best possible product quality.

JCB sells its products in 150 countries. The product range comprises 130 models and the company has more than 4000 employees. Sir Anthony Bamford, eldest son of the late Mr JC Bamford, is the company’s Chairman and Managing Director.



CrownLoc can drill 300 of these holes before the crown needs changing.

High quality demands for the wine industry

Drilling with Seco CrownLoc

"We found a drill that reduced our cycle time by 300% and improved quality", says Richard Schiller, General Foreman at EAS Toolcraft.

EAS Toolcraft is one of South Australia's leading engineering companies, producing components for a wide range of industries including, defence, mining and the wine industry. Achieving the highest quality and reducing lead times are the main criteria for EAS Toolcraft.

When Seco was first asked to assist in improving the production of a hole in a 316 stainless steel component, the



EAS Toolcraft premises Holden Hill South Australia

answer was simple. CrownLoc. After analysing the current tooling and methods being utilised, a 13.50 mm diameter CrownLoc was introduced on an Okuma CNC lathe with the result that the total lead-time was reduced and the quality of the hole improved in one move.

The previous process utilising a brazed carbide drill and HSS reamer was very time consuming and required a second operation on a manual lathe to achieve the specified surface finish and tolerance. To complete this process consumed a considerable number of hours. In addition, the thin wall section of the component and 65mm drilling depth meant that a drill that produced low cutting forces was needed.

The Seco SD105-13.00/13.99-65-20R5 Crownloc drill body and SD100-13.50P Crown were selected as the first choice. Since the hole depth was almost 5 times the diameter, particular care was taken when setting the drill in the machine to ensure minimum runout. Cutting data was selected directly from the Seco Machining Navigator. The ini-

tial trial resulted in an immediate reduction in the number of poor quality components.

The original process, which resulted in reject rates as high as 30%, was now under control. The higher cutting data for CrownLoc increased the throughput by almost 300%. For continuous production and optimised life of the Crown, the cutting data was set at 90m/min cutting speed and 0.12mm/rev feed rate. To improve lubrication and chip evacuation the coolant viscosity was increased resulting in a 12% coolant to water ratio. Tolerances on the product were maintained to within .045mm, inside the range specified by the customer. For EAS Toolcraft a major gain was the elimination of the reaming operation on the manual lathe, made possible because the surface finish produced by CrownLoc was much improved over the previous H.S.S. reamer.

Seco's CrownLoc has now been implemented as the standard hole making solution at EAS Toolcraft with new applications emerging every week.



From left: Darren Schrapel, Sales Engineer Seco Tools, Richard Schiller, General Foreman EAS Toolcraft, and Damian Barton, CNC Operator/Setter EAS Toolcraft

Europe's most modern workshop?



The new workshop that has cost NOK 70 million.

His grandfather began making horseshoes back in 1918. Grandson Inge Brigt Aarbakke has now built a modern workshop in Bryne on the west coast of Norway, with 'Mazak Street' running through the workshop. High quality and fast deliveries, mainly to the oil industry, are the hallmarks of this company.

The entire concept is based on foresight and efficiency. As an example, a CCTV enables Inge Brigt Aarbakke, Managing Director of Aarbakke AS, to see on his computer terminal the production run in the machines. During one year, the company produces around 7000 parts that are mainly one-offs. The company does not compete on price - quality and quick deliveries are the main competitive weapons. The output of the company is 40 new products every day, and most of these are technically advanced.

"We can produce anything up to 1 metre in diameter and 4 metres long," says Inge Brigt Aarbakke. "The workpiece materials are often stainless steel or exotic materials that are difficult to machine."

The cost of the new workshop in Bryne was NOK 70 million, of which machines accounted for NOK 20 million. The new factory has a floor area of 4500 square metres, and the offices are 1000 square metres.

The new machines purchased include a Mazak Integrex E-650H (4000U), Mazak Integrex 200SY mark II, Mazak Slant Turn 50N Universal 3000, Mazak Mazateck V-815/120, and Mazak Mazatech V-655.

The Mazak Integrex E-650H is so far the only one in Norway, and its cost was around NOK 10 million.

Most of the products (98 percent) are sold to the oil industry, and 35 percent are exported. The company has 96 employees, most of whom are young and well educated. The company's turnover is just under NOK 200 million.

The entire workshop is air conditioned, and the temperature is kept constant at 20°C all the year round. An efficient system creates a vacuum that extracts all oil mist from the

machining coolants and machining chips. So the working conditions are excellent, and compressed air is hardly ever used for cleaning the machines.

"Customers can always reach us," says Geir Hegrestad, Production Manager. "The company is open 24 hours a day, seven days a week."

Seco tools are sold through the distributor, Digernes AS.

"Digernes is the biggest supplier of cutting tools in the region. They have local stocks, and we appreciate their ability to deliver within a matter of minutes, since our two companies are close neighbours," says Geir Hegrestad.

Many of the machining tools come from Seco, including CrownLoc drills, SD52 and SD55, turning inserts in grades TP200 and TP1000, CP500 for turning and threading, and the entire Turbo range for milling. Seco also has a number of special threading inserts that Aarbakke purchases to meet the needs of the oil industry.

"We have been using Seco tools for many years," confirms Geir.



Inge Brigt Aarbakke in the new workshop. Note the names of some football players from the Bryne FK club painted on the overhead travelling cranes.



465 guests assembled for the opening party on 13 June.

Geir Hegrestad, Production Manager and Aril Digernes from the Seco distributor.

An opening party for 465 people was held on 13 June. The guests included Takashi Yamazaki, Managing Director of Mazak in Japan, and Marketing Manager T. Takamatsu from Mazak in England.

Inge Brigt Aarbakke supports the Bryne FK premier football club. This can clearly be seen in the workshop - present and past football players have their names painted on the overhead travelling cranes!

However, the most distinctive feature are the orange and lemon trees planted in the workshop. So it is only a matter of reaching out and picking the fruit you feel like having ...



**Digernes AS, Bryne
Norway**

In spite of a weak market

Sales of tools from Seco are on the increase

Digernes AS is the biggest of the 19 Seco distributors in Norway. The company specializes in cutting tools, and the seven employees achieved a turnover of NOK 24 million last year.

The business climate in Norway has been in decline since last summer. However, this does not apply to the region around Stavanger, which is expanding to support the oil industry. Digernes AS has succeeded in increasing its turnover of tools from Seco and thus increasing its market share.

One of the reasons for this success is the excellent standard of service, including their in-house personnel with good technical knowledge. Technical Salesman Kåre Salte bears main responsibility for providing customers with technical support. So the company can assist its customers and thereby attract further orders.

Sales Manager Aril Digernes lives close to the company, and customers often phone him at home if they need urgent deliveries. Digernes AS has large local stocks of tools and inserts, and they are more than willing to accept the increased stock-keeping costs to provide customers with good service.

Digernes AS was originally a family company formed in 1978 by Paul Digernes. He is the father of Managing Director Ingve Digernes and Aril Digernes, and the founder Paul still works in the company.



Aril Digernes and Ingve Digernes outside the company premises in Bryne, just south

“Forget other grades if you have TP1000”

The new Seco TP1000 turning grade has solved serious machining problems at AP-Tela Oy, Kokkola, Finland. This company machines large workpieces made of nodular martensitic cast iron - a difficult material used for products such as rolls for the paper industry.

“We had serious problems before TP1000 came into the picture,” recalls Kari Harju, Work Supervisor at AP-Tela Oy.

The materials machined by this company are GRP 800 and GRP 900, i.e. hard nodular martensitic cast iron, which is in Seco material group 15.

“You can forget other grades when you have TP1000,” says operator Hannu Heikkilä.

The TP1000 is used for turning GRP 900 workpieces with a diameter of 1500 mm and a length of 900 mm. The cutting speed is 100 m/min, the feed rate is 0.4 mm/rev and the depth of cut varies between 4 and 8 mm.

The inserts are CNMG190612 with M5 chipbreaker. The same inserts are used for finish machining, but the chipbreaker is then M3. The inserts have proved to be long lasting, and the entire machining process performs extremely well.

“There are obviously other grades, but they don’t perform well in both roughing and finishing,” says Production Manager Juha Kivelä.

AP-Tela Oy manufactures both machines and spare parts, mainly rolls for the paper industry. The company also produces machines for companies in the steel, process, energy and shipbuilding industries. However, 80 percent of the production is destined for the paper industry. The company has a turnover of 5 million Euro and employs 55 persons.

The company was founded in 1994 and is now a member of the Vahto Group that has 560 employees and a turnover of 39 million Euro.



From left, Kari Harju, Work Supervisor, Pekka Viitasalo, Managing Director of AP-Tela Oy, Juha Kivelä, Production Manager and Juha Piiiparinen, Seco salesman in the region.



“TP1000 is a durable grade,” says operator Hannu Heikkilä.



The workpieces machined at AP-Tela Oy are of an imposing size.

Graflex tools are adaptable



From left: Marco Humberg, Production Manager at Konepaja Santalahti, Stig Ådahl, Seco salesman in the region, Pasi Niitymäki, Managing Director of Konepaja Santalahti, and Keijo Manner, Managing Director of Seco Tools OY.

The Konepaja Santalahti OY company has been using EPB tools for four years and is pleased with the results. The company is purely a subcontractor and must continually adjust its production to new incoming orders.

“We usually have short production runs and must reset the machine tools up to four times a day. Graflex tools are adaptable and can be adjusted quickly. They are also simple to use,” says Production Manager Marco Humberg.

He also asserts that their repeatability is good.

“Dimensional accuracy is important in ensuring that we always maintain the right dimensions,” he says. “The quality of the tools is undoubtedly a very important factor.”

Four years ago, the company bought EPB Monobloc and Graflex – both holding and boring tools. The latter are kept in this company’s stores in sizes between 15 and 355 millimetres.

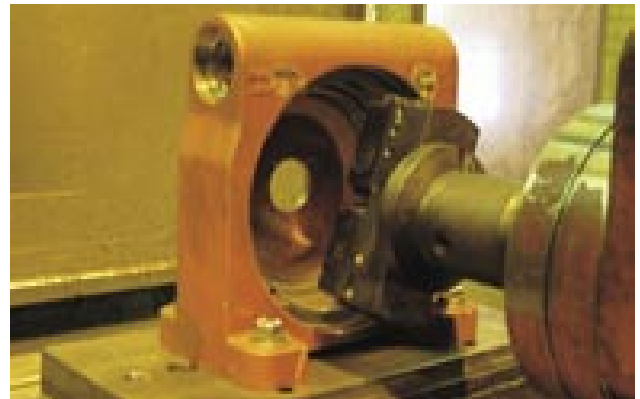
The subcontracted work entrusted to the company includes housings for screw compressors, parts for snow clearance machines for airports, crane components and a great deal more.

In addition to EPB tools, the company also uses a number of milling cutters, drills and turning tools from Seco. The milling cutters kept in the stores here include the Turbo milling cutter range, and R215.59 helical milling cutters. Konepaja Santalahti also uses CrownLoc drills with replaceable crown, Perfomax indexable insert drills and the SD20 and 25 solid cemented carbide drills. The company also uses the TP200 universal grade for turning. The workpieces are usually of cast iron and steel, although high-grade stainless steel is often also

in the picture. The workshops usually machine to IT7 tolerances.

Konepaja Santalahti uses the Seco Online Store for ordering new tools on the Internet, and the system performs very well.

The company was formed in 1957 and now has 30 employees and a turnover of 2.4 million. Most of the production is destined for customers such as Gardner Denver, Kone, KCI KoneCranes, Metso, Parker Hannifin, Pilkington and other major conglomerates.



A 205 mm diameter Graflex boring tool.



Konepaja Santalahti uses EPB Monobloc and Graflex tools.

Konepaja Santalahti recently bought two Dah Lih machining centres from Taiwan. These are 3-axis and 4-axis machines with vertical spindles. The bigger machine has 30 tool stations and the smaller, 24 stations. Both are equipped with holding tools from EPB. In addition, Konepaja Santalahti has bought a number of face and square shoulder milling cutters from Seco Tools OY.

Priority given to comprehensive solutions and new technologies

Faurecia is one of the world's automotive equipment leaders in six major vehicle modules: seat, cockpit, door, acoustic module, front unit and exhaust. As an engineering and service group catering for the automotive industry, Faurecia achieved a turnover of 10 billion euros in 2002. The group is established in 27 countries, employs nearly 60,000 people spread over 160 sites and has 22 R&D centres.



Pascal Montagnon and Luc Hattenberger, Seco.

The Faurecia site at Audincourt in the Doubs département, which mainly supplies equipment for vehicle manufacturers PSA and VAG, accommodates a unit of more than 140 people working on the development and production of sets (subassemblies) of moulds. Proximity to the Peugeot factories is undoubtedly one of the unquestioned advantages in its development, while not preventing development of its know-how with all the other major automotive manufacturers such as Renault, BMW, Audi, Volkswagen, Ford, General Motors, Toyota and Mercedes.

Specialisations and know-how: moulds for injection, duplicate moulding, compression of large dimensions (up to 40 tonnes). The Audincourt factory has the benefit of de-



Copy milling cutter with new design

sign, computing and manufacturing facilities at the leading edge of technology.

Mr Pascal Montagnon, in charge of mould production, is responsible for applying the optimum machining solutions and hence increasing the performance of his production unit. This is imperative for maintaining the competitiveness

needed to cope with international competition. Accompanied by the Seco technician, they are together improving the productivity and quality of the machining. Their motto "Performance, Quality and Reliability".



Shrink fit operation in an EPB machine with Jabro cutters

Plant worthy of Faurecia's ambitions: "Linx Blitz" Jobs Machine, some impressive technical characteristics:

Capacity of 2200×1700×900 mm, fast movement speed 70 m/min, 5 axis head: maximum spindle speed 24,000 rev/min, 29 kw, torque 42 N/m, cone HSK 63 A. Straight head: maximum spindle speed 9000 rev/min, 34 kw, torque 125 N/m, Cone HSK 100A.

Jabro Tornado milling cutter, hemispheric diameter 5 mm: JH110VL Mega

Cutting speed: 400 m/min, f: 4000 mm/min – ap: 0.35 mm.

Faurecia is also competitive in modern machining technologies: high-speed machining, shrinkfit, toroidal cutters. With a view to incorporating further expertise, the whole team of the methods department are constantly on the lookout for new solutions offered by their suppliers.

For the choice of tools, the strategy adopted by Mr Montagnon is simple, defined by numerous tests combining know-how and technology. The new machining solutions proposed by Seco have found their place in an environment that calls for high levels of performance. More reliable and more precise insert cutters, carbide grades and coatings of the latest generation, pre-balanced, compact and modular "Combimaster" holding systems providing maximum flex-

ibility. All of these milling tools are mounted on EPB toolholders guaranteeing the durability of the tools over time while at the same time meeting the requirements imposed by the high-speed spindles.

Superiority of the Jabro range of carbide cutters

Solid carbide has found its place in finishing. Products from all the major cutter manufacturers were tested. It was the Seco Tools Jabro endmills that made the difference. Shrink fitting is done at the workstation, it guarantees rigidity, balance and precision of less than 3 microns (positioned

at three times the tool diameter). Shrink fitting is done on EPB toolholders by means of an easy-to-use bench mounted machine called "Easy Shrink" capable of shrink gripping carbide into a toolholder.

An example of finish drilling done with Seco latest-generation toroidal cutters R220.29 0034.03.8A

Cutter with round inserts, 8 teeth ♦ Diameter of inserts: 6 mm ♦ Micrograin grade: F25M ♦ Ap: 0.25 mm ♦ Fz: 0.15mm/d ♦ Vc: 170 m/min ♦ Service life: 5 hours

**Française de Mécanique, Douvrin
France**

Bifix tailor made

Working to microns throughout the line

Française de Mécanique (FM) was created in 1969 and specialises in the manufacture of long runs of engines and castings for the automotive industry. On its 150 hectare site, FM carries out the machining and assembling of four families of petrol and diesel engines. More than 9700 engines are produced each day at Française de Mécanique. By going for excellence, FM has consistently set itself the aim of being at the leading edge of innovation in products and processes while at the same time maintaining the best possible level of performance.



TU5 JP4 cylinder head with Seco's BIFIX tools

It is through a combination of know-how and products that Seco became one of FM's main suppliers. Being regularly consulted, Seco is responsible for the optimising and improvement of all kinds of machining.

Reaming operations are currently Seco's main focus. The technical teams comprise of Seco technicians assisted by the reaming specialists of Seco's production unit based at Tour du Pin (Isère) and the technicians of the TU5 JP4 cylinder head production line who provide on-the-spot assistance, technical analysis, management, adjustment and monitoring of the tools for the whole of the line with its 35 Renault Automation "Urane" machining centres. This

cylinder head is fitted to the 1.6 litre 16 valve gasoline engines used to power the Peugeot 206 and 307 and the Citroen C2, C3, Berlingo and Xsara. The valve seats and guides and the camshaft line are the trickiest reaming operations and require maximum precision, since they provide the engine with its reliability. It takes 16 different tools to perform this cylinder head's reaming operations. They are very complex and are done with tools of Seco's "Bifix" family of insert reamers. For the machining of the guides and seats, the tools are combined with three carbide inserts for the roughing, three CBN inserts for the finishing and have axial and radial settings. They machine in a single operation the various diameters, lengths and angles and make it possible to achieve dimensions to tolerances of ± 0.015 mm. The camshaft line reaming operations on this cylinder head required, using the Bifix tools with inserts, the achievement not only of three different diameters but also concentricity not exceeding 0.03 mm and a circularity of less than 0.015 mm, and this at more than 433 mm from the nose of the spindle. Achieving this precision would be nothing for the two teams if it did not have to be reproduced on each of the 1200 cylinder heads that leave this line every day.

More than 125 Seco tools are in use on this line and there are very few suppliers currently capable of providing such know-how in an area as advanced as reaming. Seco has this expertise, which is transmitted to the technical sales teams by the La Tour du Pin unit. As well as being a production and R&D centre for the whole of the Seco group, this unit is a design centre that controls this range from manufacture to implementation by providing technical supervision at our customers' premises. It is reliable and guaranteed solutions that are proposed by the Seco specialists. Française de Mécanique relies on this know-how. The choice of Seco as main supplier has resulted in an exceptional relationship between the teams making it possible to achieve the ambitious objectives of a leading company such as FM specialising in the manufacture of engines.

Nano Turbo™ delivers increased feed, speed and tool life for die maker

In a recent metal removal operation requiring roughing high pressure die cast cavities out of group 6 steel, ToolCam Technologies (Vaughan, Ontario) – a supplier of precision tooling to the automotive die casting industry – had some high hopes. They wanted to optimize their new low-horsepower, high-rpm machine, in addition to achieving light depth of cut with high feed rates.



Nano Turbo's super positive geometry effortlessly cuts metal, reducing the load on the spindle for lower power consumption. Pictured here ToolCam Senior CNC Operator, Gilberto Caldero and Seco Product Specialist, Mitch Hamilton

ToolCam had invested in its new HMC to improve cutting processes and to transfer from a rigid vertical (8000 rpm) spindle to a light-duty, higher rpm spindle. Standard spindle speeds for the machine ranged from 20 to 12,000 rpm. Ross Mateer, production supervisor at ToolCam, knew that with its faster spindle, the machine was capable of far greater output.

This was going to require something out of the ordinary, so ToolCam turned to Seco-Carboly product specialist Mitch Hamilton. "It was a matter," says Mitch Hamilton, "of understanding the capabilities of the machine and finding the right tool to optimize its performance. I felt confident that Nano Turbo™ indexable insert endmills were the answer."

Nano Turbo super-positive inserts offer exceptional balance between soft cutting action and strength against cutting forces. With an optimized cutting edge, Nano Turbo gets behind the metal effortlessly without work-hardening at the surface.

"ToolCam wanted to try chip stretching, a style of cut-

ting commonly used with button cutters," continues Mitch Hamilton. "We recommended a tool with a 0.060 inch (1,5 mm) radius and a 0.03 inch (0,75mm) depth of cut, using the radius of the tool to stretch the chip instead of cutting a square shoulder."

ToolCam started by running Nano Turbo at the recommended "book parameter" cutting speed of 400 surface feet (122 m/min) with feed per tooth of 0.003 inch (0,07 mm) on an tool steel application. But, with chip stretching, ToolCam was able to increase to 650 surface feet (198 m/min) and 0.0065 inch/tooth, (0,16 mm/tooth). This was a huge gain compared to the solid carbide endmills that had been running at 295 surface feet (90 metres) and 0.0012 inch/tooth, (0,030 mm/tooth).

Nano Turbo's super-positive geometry also resulted in less power consumption. According to Ross Mateer, "It barely touched the horsepower meter. And, it dramatically reduced the load on our spindle. Normally you want to push the spindle load up to around 27 percent or so. With Nano Turbo, it didn't even touch 10 percent."

Another key feature for ToolCam was flexibility. A single tool body can accommodate a wide range of insert corner radii. In ToolCam's operation, a 0.060 inch (1,5 mm) corner radius was used for semi-roughing and then, with the same tool, the operator was able to use a 0.004 inch (0,10 mm) corner radius to get into small corners.

ToolCam was also able to cut cycle time in half by using four inserts instead of two – allowing more jobs to be run on the machine. And, Nano Turbo precision inserts and seats allow operators to simply change the inserts when cutting edges get dull – there are no redoing offsets, resulting in less downtime.

Final Nano Turbo benefit is increased tool life. In test results following the initial run of the Nano Turbo endmills, ToolCam experienced a 30 percent increase in tool life compared to solid carbide endmills.

"It's the perfect cutter for our machine. Nano Turbo has not only met our expectations, it has surpassed them. We're extremely pleased with the results," adds Ross Mateer. "As comparison data showed, when Nano Turbo was put to the test, it really delivered."

Machining stamping dies

Minimaster and Octomill were the big challenge



Autoeuropa is a German company founded in 1995 and situated in the city of Palmela, Portugal.

Its original name of Ford/Volkswagen was changed to Autoeuropa from 1 January 1999, when the Volkswagen group took over the whole share capital.

The factory, with a production area of 1100.00 square metres and 3300 employees, had turnover of 1955 million euros in 2002.

The models produced in Palmela are the Volkswagen Sharan, the Seat Alhambra and the Ford Galaxy and the main markets are Germany, United Kingdom and France.



One of the simulations conducted at the 2003 Open Day with our Minimaster completing a 3D run on a mould for the MPV Sharan in the machinery section (Toolshop department).

The first tests with Minimaster led to the conclusion that it is the best solution for the prefinishing and finishing of cold stamping tools.

Minimaster's good results enabled Autoeuropa to start tests with Octomill cutters on the roughing and semi-roughing of the dies.

The excellent results achieved mean that Seco is very well positioned to develop cooperation between the two firms in arriving at the optimum machining solutions.

The stamping dies for making the various components of the chassis and bodywork are based on the material GG25 (Seco Material Group 13) with inserts made of GGG70L (Seco Material Group 14) and configuration blades from

1.2363 and 1.2379 (Seco Material Group 6), these parts are roughed with the Octomill standard family 220.43-07 and 220.43-05 and in the prefinishing, finishing and radius reductions with the various holders and inserts MM06, MM08, MM10, MM12 and MM16 of the Minimaster family.

We were invited to participate in Autoeuropa's Open Day

Autoeuropa holds every year an "Open Day" when it invites all collaborators and their families and friends to visit the factory.

This year, at the invitation of the toolshop department, Seco Tools Portugal was one of the firms attending. Participating with great interest and commitment in this event, we ran a stand that was simple but made quite clear the benefit that our products represent for Autoeuropa.



From left to right: José Simplicio, Machinery section team leader, Carlos Azevedo, Seco sales engineer, Mário Santos, Senior machinery section and CAD/CAM engineer, Rui Lopes, Planning and methods.



The whole group, comprising customers, Seco personnel and the driver, lined up for the photo on the Jabro car park.

Belgian customers on a tour around Europe

Seco Tools Benelux arranged a three-day coach trip for 35 customers in mid-October last year. The group visited Balzers at Sint-Truiden, Belgium, the Seco European warehouse in Houthalen in Belgium, and the two Seco production units Seco/Jabro Tools in Holland and Seco/EPB in France.

Balzers N.V., Sint-Truiden, Belgium

Regrind the tool and then have it recoated.

Balzers was founded in 1946 in Liechtenstein. The company initially worked on coating optics, i.e. applying anti-reflection treatment and the like. In 1980, Balzers began coating metals, mainly with titanium nitride (TiN).

The company has now become big in this area with



A selection of tools. Recoating pays for it self very quickly.

many types of coating, including diamond. Balzers now has 1850 employees around the world.

Many customers regrind their own tools or entrust the work to a subcontractor. In some cases, customers do not have the tools recoated, and the cutting edges then have a shorter tool life. The visit to the Balzers coating centre gave the visitors an insight into how professionally and carefully Balzers perform their coating process assignments. The coating of cutting tools ultimately saves money for the customers. Better quality of the finished workpiece is another benefit. The use of coolant can also be reduced if the cutting edges of the tools are coated.

European Distribution Centre (EDC), Houthalen, Belgium

21 500 different products are stored here

After a guided tour of the Seco EDC, the visitors gained a better understanding of the risk that a parcel may go adrift or arrive too late at the destination! But there are surprisingly few errors. Goods are sent from here to Seco customers in 12 European countries. Products from Seco in Sweden, the Netherlands and France arrive daily by air or by road. A total of 40 people are employed here.

“I was amazed at the number of different products in



The logistics around the Seco warehouses, including that in Houthalen, are extensive. The visitors were given a thorough review of how it all works.

this warehouse. And also at the speed of the throughput,” says Marc van Heck, one of the customers on the trip. He has very favourable experience of EDC, and deliveries have always performed well for him. Short throughput times are essential for distribution if orders are to be delivered within 24 hours – the time that applies for most destinations in Europe.

Jabro Tools, Lottum, the Netherlands

“Jabro is a fine and well-organized factory,” says Marc van Heck. This did not surprise him, since the quality of the tools is a testimony to orderliness and professionalism. Jabro Tools is Seco Tools production unit for solid carbide milling cutters.

Marc van Heck is involved with cutting tools at Niko N. V., St. Niklaas, Belgium. The company produces domestic electrical equipment – contacts, switches, junction boxes, etc. Niko N.V. produces its own forming tools for all of the

plastic parts that the company makes. A number of Seco cutting tools are used at Niko N.V., including Minimaster, Octomill, Turbo milling cutters and Jabro solid carbide milling cutters for high-speed milling. The company has DMU type 70 Evolution 5-axis machines, equipped with HSK-63 holders from EPB.

“Jabro produces high performance milling cutters of very



Jabro and EPB are relatively new members of the Seco Tools Group, but they jointly strengthen the Seco capacity as complete tool supplier. Before the guided tour of Jabro, the visitors were given an overview of the Jabro operations.

high quality,” says Marc van Heck. “Niko N.V. has been using Jabro tools for a long time.”

“Jabro is a well-known name in high-speed milling,” concludes Marc van Heck.

EPB, Bouxwiller, France

Expensive machine tools demand quality tools.

“It may be impossible to see differences in quality with the naked eye, but they become evident after about six months,” says José Vancoillie, owner of the Vancoillie

BVBA company at Moorsele in Belgium. He is convinced that EPB quality tools are of benefit to him.

His company has 26 employees and serves as subcontractor to customers in the electronic and textile industries. The work often involves the production of small, high-precision



Graflex holding tools and boring tools and also the Monobloc are good supplements to the ordinary range of Seco tools. The customers were able to see how quality tools are produced.

parts. The company has a number of 5-axis machines, and even an 11-axis unit.

José Vancoillie has Monobloc, ISO 40 and HSK 63, as well as a number of Graflex boring heads of adjustable diameter for rough machining and finish machining.

“EPB tools have very close tolerances, and their repeatability is also good. In our applications, we must have confidence in the tools we use,” says Sose Vancoillie.

“When you see the production of EPB tools, you soon realize that their quality is very high. My thoughts about EPB have been confirmed after this visit,” says José Vancoillie.

He also says that he will be implementing a number of ideas he hatched during his visit to Bouxwiller when he returns to his company in Moorsele.

EPB joined the Seco Tools AB Group in the year 2000.



NEW GENERATION PERFORMAX SD500

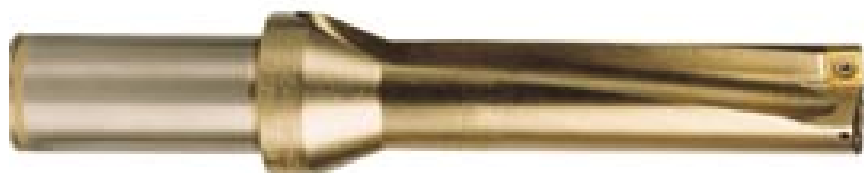
A golden opportunity for safer holemaking at a lower cost per hole.

Improved application security

- optimized chip flute design with a unique low friction coating
- better chip evacuation
- more rigid drill body for better performance and hole quality
- stronger drill body with increased wear resistance
- increased coolant flow with double coolant holes

Reduce your hole making cost by 30-50%

- 4 cutting edges per insert
- the new T2000D for maximum productivity and security



Capacity, knowledge and fast services, make excellent partnership businesses...

Mazak Sulamericana, created in 1997, is the Technology Centre in Brazil of the Yamazaki Mazak Corporation and one of the world-wide beneficiaries from the experience of almost 90 years of Mazak in the production of machines tools. Based in Santa Bárbara d'Oeste, 130 km from São Paulo City, the Technology Centre is structured to offer services of quality to the customers in South America.

Mazak has more than 170 models of machines in the full range, including CNC lathes, Machining Centers, laser machines for plate and profiles (2D and 3D), systems for manufacturing automation; FMS and systems for management of manufacture in modules that includes CAD/CAM systems for automatic CNC programming and simulation. These provide high productivity with quality and excellent added value to the users.

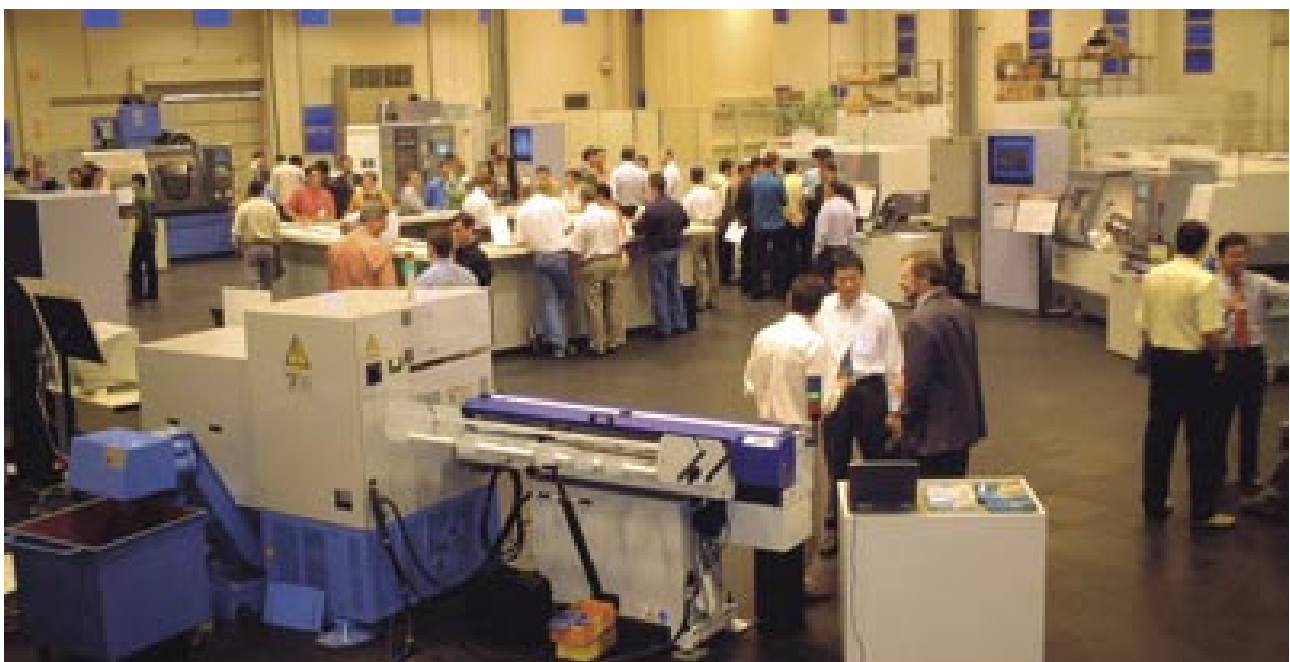
With the Cyber Production Centre, specially adapted for Mazak, it is possible to manage production in real time. "The product range makes Mazak a company with almost complete solutions for the manufacturing environment", said Mazak Sulamericana. "The continuous research and development activities of the 7 production units installed in 5 countries is focused on customers requirements. Mazak is

an innovative and creative company in the manufacture of machine tools", it concludes.

Mazak Sulamericana has 800 machines installed, in various branches of South American industry. A number which marks a significant achievement.

Customers include: TRW Automotive, Robert Bosch, AAM, Delphi, Weatherford, Krupp, Sifco, ZF, Continental Teves, Embraer, Jacto, Tupy Fundições, Parker, AGCO, Valtra/Valmet and many others. "Each customer is very important for us. We aim to offer good products to meet customers expectations and retain their support," informs Mazak Sulamericana. "Our partners have great importance in our success. Seco Tools is one of the best and more important partners. If the machine is equipped with advanced technology, the tools must be of the same level. Know-how, technical support and the application of efficient products is the key to success for companies in an extremely competitive market. In the final analysis this all serves to benefit the end user.

This partnership was highlighted on the 14 and 15 of October 2003, during an open house in the facilities of Mazak Sulamericana. The event included demonstrations of the Nexus of multitask machines, mould and die machines, laser cut machines and technical Seminars, where various



General view of the Mazak Centre during the Open house

companies gain the opportunity to improve productivity, quality and to reduce costs. Seco Tools was present with tools on demonstration in Mazak machines.

Seco has offered good technical support to Mazak Sulamericana since its creation. "We recognize our importance in the growth of Brazil. This equipment brings better productivity with reduction in cost and improvement in the manufactured product quality, The cutting tool is important for a good performance of the machine tools. Seco always support us in the preliminary studies for a turn-key solution and in machining tests. We are all working together to achieve the best possible result".



Mr. Haroldo Silva, Mazak application technician and in the left Marcelo de Lion – Seco O & M Seco Tools technician

R218.20

A NEW COPY MILLING CUTTER

R218.20 is a real K=2, that delivers higher performance and better reliability (both teeth cutting).

It has a unique seating with tenon to avoid stress on the locking screw, and a chip space with a big radius to make the cutter strong in the centre.

The edge is 'S' curved to reduce cutting forces and has a constant cutting rake angle all along the edge. A positive axial rake allows up-machining.

It is the most perfect direct pressed insert with two usable edges on the same insert.

Reinforcement in the centre makes it breakage resistant.

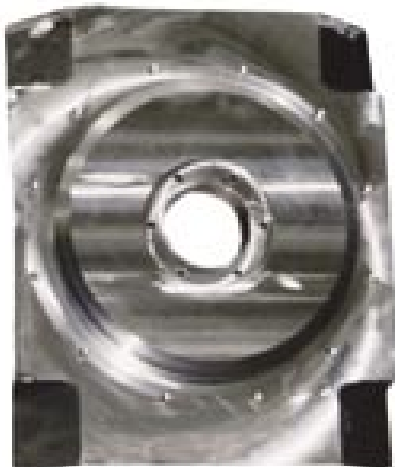
A smooth geometry generates very low cutting forces, and it has an adapted clearance all along the edge.



Power Turbo: a reliable solution for the productive machining of difficult stainless steel

KUKA ProTec is a production company with a workforce of approximately 350 employees. As a subsidiary of KUKA Roboter GmbH, Germany's No.1 robot manufacturer, KUKA ProTec is engaged primarily in the assembly of industrial robots and the manufacture of diverse component parts. These parts are produced in its machining, welding, sheet metal cutting, painting and electrical manufacturing departments. Indeed, this company is a veritable "bundle" of production know-how.

KUKA ProTec sees itself as a production service provider. Other customers, besides KUKA Roboter GmbH, include member companies of the IWKA Group and also – and to an increasing extent – companies outside the group. These customers order parts for traffic and military engineering and also for general mechanical engineering applications.



The Power Turbo was able to machine the base plate in one single cut.

In view of KUKA ProTec's enormous production range, it is hardly surprising that metal cutting problems occur from time to time. This was the case, for example, with the base plate for a particle accelerator. This part, into which a 14 mm deep shoulder had to be milled, was of cast stainless steel, G-X10 CrNiMo 18

9 (Seco Material Group 9), a material which is extremely difficult to machine. The problem was aggravated by the fact that the allowance at the corners fluctuated from one part to the next, giving rise to critical situations again and again.

The initial tests were carried out with a 12 mm square indexable insert from one of Seco's competitors. The machining operation proved to be extremely unreliable: "On account of the differences in allowance at the corners, the 12 mm cutting edge was often too short, not only causing breakage of quite a few inserts but also damaging the mill-



Dietmar Schneider has solved his machining problem with the Power Turbo.

ing cutter itself. Moreover, two cuts were necessary. With a tool life quantity of just one workpiece, this was neither acceptable nor economical."

Although Seco's Super Turbo was able to double the tool life quantity, the machining operation was still unreliable, as the Super Turbo likewise features a 12 mm cutting edge.

The perfect solution came with the new Power Turbo, the distinguishing features of which are: light-cutting, sturdy, max. depth of cut 17 mm.

Using the 18 mm cutting edges of the indexable inserts XOMX 180608TR-M14 in F40M, it was possible to do the machining in one single cut. Even the fluctuating allowance was no longer an obstacle. The sturdy indexable inserts achieved the required depth of cut of 14 mm with absolute ease. With a cutting speed of 125 m/min. and a feed speed of 644 mm/min., it was now possible, with a tool life of 14 minutes per cutting edge, to machine a total of four parts.



As a service company, Kuka ProTec manufactures a diversity of parts, including robot components.

Thus the most important requirements – increased productivity and reliability – had now been fully met by the Power Turbo.

Dietmar Schneider: “We are most satisfied with this solution. There is nothing to beat it at present.”

T200M

The main application area for inserts in the new grade T200M is difficult to machine high-alloy steels and malleable cast iron, and particularly milling operations in these materials where high toughness is required (Seco material groups 12–15). T200M is also the perfect choice of grade for milling applications in high alloyed tool steels (Seco material groups 6 –7).

- T200M has a better wear resistance and at the same time good toughness compared to other grades for this application area.
- T200M has a substrate with a fine WC grain size and a modern MTCVD coating with $Ti(C,N) - Al_2O_3 - TiN$.
- T200M is developed for high cutting speed applications in the material groups and operations mentioned above.

For all milling applications in **cast iron T150M and T200M** are the superior and complementary grades.

T350M

The main application area for inserts in the new grade T350M is very tough and demanding operations in soft to medium high alloy steels (Seco material groups 1–5) and free cutting up to difficult to machine stainless steels (Seco material groups 8–10). T350M is also the first choice grade for milling applications in easier up to moderately difficult to machine superalloys (Seco material group 20).

- T350M is very tough compared to other grades for this application area.
- T350M has a very tough substrate and a smooth modern MTCVD coating with $Ti(C,N)$ and Al_2O_3 on top to minimise workpiece adhesion in sticky materials.
- T350M is developed for high feed applications in the material groups and operations mentioned above.

For all milling applications in **steel and stainless steel T200M, T250M and T350M** are the superior and complementary grades.



30 percent higher cutting data

Faster production with Power Turbo

Morgårdshammar AB, which is a member of the Italian Danieli Group, has rationalized its production of the latest generation of roller guides for rolling mills. An important element is that they now use the new Seco Power Turbo milling cutters.



An assembled roller guide of the latest generation ready for delivery to a rolling mill. The annual production is 700 roller guides of various sizes.

Morgårdshammar AB invested in a Hüller Hille 4-axis machining centre that was installed in 2002. This has seven pallets that include fixtures for the various roller guides in the company's product range. The tools are in cassettes, and it is simple to change over from one cassette to the next without stopping the machine. So the whole procedure is very efficient, and the setting times have been drastically cut.

A further improvement was introduced when the new Seco Power Turbo milling cutters were tested. The cutting data could be increased by an average of 30 percent compared to a mill from another manufacturer.

The milling cutter now used is a Power Turbo R217.69-3240.0-18A. The XOMX180608TR-M14 inserts are made of grade F40M.

"F40M can machine both hardened SS2303 stainless steel and hardened SS2541 steel castings with satisfactory results," says Jonas Löfgren, Production Engineer at Morgårdshammar AB.

The two workpiece material grades are in the Seco material group 5. No coolant is used.

Morgårdshammar AB is now gradually changing over to Power Turbo cutters.

The company operations are part of the Danieli international industrial group.

17th century

Iron bar and forgings have been in production in the small Morgårdshammar village since the 17th century. In the mid-18th century, mine owners began hot-rolling the iron, which then superseded the old hammer forging method. This resulted in products of higher quality.

Since mid-19th century, Morgårdshammar AB has been a specialized producer of rolling mills and equipment in this industrial sector.

The company has customers in Bilbao, Sheffield, Jamshedpur, Hällefors, Penang and a host of other places around the world.

Began in 1914

Danieli traces its origins to 1914, when two brothers, Mario and Timo Danieli, founded the Angelini Steelworks in Brescia, Italy.



Short production runs demand short setting times. About 250 such workpieces are produced every year.



The team engaged on introducing the Power Turbo milling cutter at Morgårdshammar AB. From left: Janne Lundström, operator, Jonas Löfgren, Production Engineer and Jonny Widehammar and Kenth Olsson, both from Seco Tools. In the background is the Hüller Hille 4-axis machining centre installed in 2002.

Today, the company has around 3000 employees and, in addition to Sweden and Italy, also has operations in Germany, the USA, England and France. The Head Office is in Buttrio, Italy, and the company is now one of the three biggest in the world in equipment for the metals industry.

The Smedjebacken factory employs 78 office personnel and 96 shop-floor workers. The Sund Birsta subsidiary in Sundsvall employs ten people who design and sell equipment for wire wrapping.

EPB MONOBLOC/ GRAFLEX®

Extended range of Monobloc holders.

- New face mill holders with internal 'through' coolant to suit milling cutters with coolant holes, available in several lengths for applications needing longer reach.
- New shrink fit holders in DIN standard shape in different lengths to achieve optimal setting length.
- New range of hydraulic chucks in DIN shape, for shank size 12, 20 and 32 mm.
- New longer length Weldon holders.
- New lengths on high precision type D collet chucks for applications needing longer reach.

The Graflex® Modular System is convenient for milling, drilling, reaming, tapping, rough and finish boring.

Devices: Shrinking machines, cooling device.

Accessories: Collets, tapping adapters, etc.



Seco tools for new machining centres

Innse-Berardi spa has received an order for two complete Atlas type 2-PML vertical machining centres. The order for the machines comes from the American General Electric Transportation Systems for its factory in Grove City, Pennsylvania, USA.

Seco Tools in Italy has been entrusted with delivery of all tools, including the holding tools available from EPB – one of the Seco subsidiaries.



Gianpietro Cacciamali shows some of the Seco and EPB products that will be delivered to the USA.

“After this, Seco has become our biggest partner in tools and holders,” says Pasqualino Cassani, one of the Technology Managers for large machines at Innse-Berardi.

Innse-Berardi manufactures machining centres, including portal milling machines, CNC lathes, HBM Horizontal Boring and milling machines, Transfer Lines and FMS plant. The Brescia factory has a total of 300 employees, and the company is a member of the Camozzi Group.

The machines purchased by General Electric will be used for machining the engine blocks for 12-cylinder and 16-cylinder diesel engines for the American railway network. Innse-Berardi had a few engine blocks on loan in order to adapt its production machinery to the coming production. The machining centres will be delivered with eight different heads to be able to achieve all of the necessary applications.

Innse-Berardi is supplying the two machines, complete with all tools and accessories.



Pasqualino Cassani and Massimiliano Serato, against the background one of the two Atlas type 2-PML vertical machining centres at the Brescia factory.

Seco has supplied the holding tools – EPB Monobloc, EPB Graflex and a number of milling cutters and drills from the broad Seco range.

This is a normal order for Innse-Berardi, but it is a very big and prestigious order for Seco Tools in Italy.

“This is our biggest order ever,” says Massimiliano Serato and Pietro Bernardinelli, Service Engineers at Seco.

“The deliveries arrived on the dates we specified,” says Pasqualino Cassani.

“The Seco representatives are the best I have ever met,” he declares. “The service has been good throughout.”

A few dimensions: The distance between the columns is



Engine blocks such as these will be machined in the machining centres from Innse-Berardi.



Some of the eight heads supplied with the machines.

2.5 metres, the distance between the table and the spindle nose is 3 metres, and the machine is 12.5 metres long. The machine power is 80 kW.



ROUND INSERTS

The milling cutter bodies for insert diameters 8, 10 and 12 mm have been modified to improve the tool life and productivity.

The main developments are:

- fully hardened cutter bodies
- closer tolerances on the outer diameter
- modified insert pockets for a smoother cutting action
- holes for internal 'through' coolant supply in cutters for arbor mounting





THINK TURBO

Boost your square shoulder milling productivity

Now give your square shoulder milling productivity a boost with the Seco family of free-cutting milling cutters and high performance inserts. From the Nano TURBO™ at a maximum 5 mm depth of cut, to the Helical Super TURBO™ at 55 mm, we've got a TURBO solution for every application!

TURBO milling cutters deliver free-cutting, next generation performance in traditional square shoulder operations, plus the ability to ramp, slot, plunge, pocket mill and handle both circular and helical interpolation.

- Cutters range in size from 10 mm to 160 mm
- Maximum depth of cut from 5 mm to 55 mm
- Feed rates as high as .35 mm/tooth
- Strong inserts and tough, new cutting grades to machine steel, stainless steel and superalloys



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