

SPECIAL SHOPFLOOR SOFTWARE AND CNC PACKAGE IMPROVE PRODUCTION BY 15% AT CEJN



With a unique part program software suite onboard a powerful CNC, one shop has found it's producing more and better parts much faster on a recently acquired new lathe. CEJN, located in Gurnee, Illinois, is the U.S. branch of a large multi-national company based in Skövde, Sweden, that manufactures an array of high-precision, high-performance pneumatic/hydraulic components, especially quick connect couplings, for which CEJN has earned an international reputation for quality.

Emco Maier EMCOTURN 345-II, a CNC lathe with 12-position tool changer, six driven tools and a 45mm (1.77") diameter max. barstock feed.

sinumerik
CASE STUDY

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The new lathe at this 25-person job shop is an Emco Maier EMCOTURN 345-II, equipped with a Siemens SINUMERIK 810D and ShopTurn software, specially designed for the job shop environment to achieve substantial print-to-part time reduction. According to CEJN CNC operator Lee Simons, that's exactly the scenario his shop realizes, recording a 15% improvement since the machine went into production.

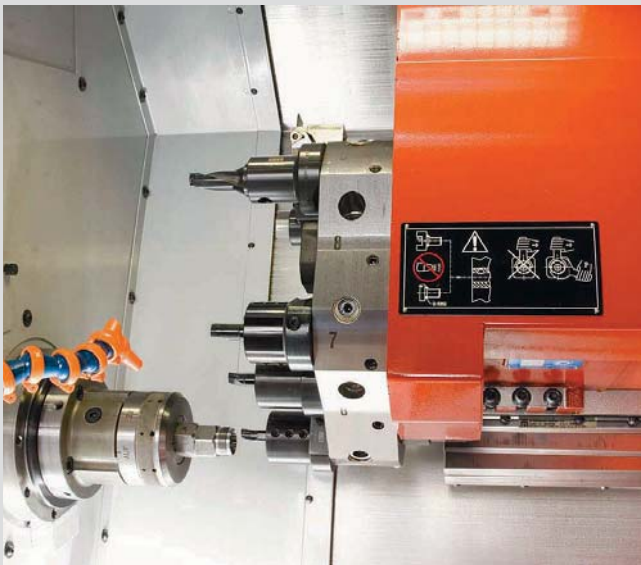
"The overall control is easy to maneuver around, to find the information you need most, such as tool data, machine parameters, programs, etc. I had almost 15 years running another brand of machine tools before I started using the Siemens CNC with ShopTurn and I find this set-up very user-friendly. I can program directly from the print dimensions with far less angle, contour and trig calculations needed. The machine movements are determined automatically, in G-code and M-code. Therefore, part programs can be generated much faster than with conventional line programming. And, editing part programs is much faster, because it's so much easier to find what you need to edit, right on the screen. By editing your finish paths, the roughing is auto-generated, another real time saver. The part program simulation function on ShopTurn is very graphic and easy to use, too. Overall, I was surprised and very pleased." Simons also noted the SinuTrain (Siemens training software) can be run on any PC and it becomes a very helpful tool for training and for quoting part times, as well as offline programming for the machine tool."

Siemens ShopTurn with compact flash (CF) card for the storage, transmission and processing of part programs, provides end-users with advanced programming support that enables them to increase efficiency and productivity with convenient

operation, programming and handling. Additionally, PROFINET, the standard industrial Ethernet, and PROFIBUS protocols are used for machine tool communication.

Essentially, ShopTurn enables the operator with little or no G-code experience to have the part program up and running in less time, owing to the teach-in function on the machine tool's CNC. Using plain language commands and GUI, the operator can see the part's progression at each stage of the cutting cycle. In this case, the CEJN operator can visualize the bar stock as it indexes through the cutting stages. The CNC on this Emco Maier EMCOTURN 345-II is also used to control the bar feeder mechanism.

Currently, a simple DNC server is used to upload and download part programs to the machine tool. The CNC onboard the EMCOTURN 345-II controls all functions of the machine, including the manipulation of a 12-position toolchanger and six driven tools. This lathe can accommodate bar stock up to 45mm (1.77"). CEJN typically runs a variety of brass, steel, stainless and aluminum stock to produce the coupling components and other items made here and sold through its nationwide network of distributors to the automotive aftermarket and other end-users. CEJN also sells its products to the OEM, including to manufacturers of performance-critical equipment such as high-pressure hydraulic rescue tools and breathing air apparatus. The company also serves the mobile construction, forestry and utility service equipment industries with innovative coupling and threadless connector designs. In the manufacturing sector, CEJN offers products to gaseous spring actuator, hydraulic bolt tensioner and torque wrench makers, plus other fluid power equipment OEMs.



Siemens SINUMERIK 810D CNC can operate six axes and two spindles and runs all machine functions, including the integrated Siemens SIMODRIVE 611D digital drives package. Drive and open loop control on a single PC board. Used with ShopTurn software, specially designed for the job shop, it yields more productivity and much faster time-to-part scenarios for CEJN on their EMCOTURN 345-II lathe, according to CNC operator Lee Simons.

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A variety of the quick connect couplings manufactured by CEJN, a Swedish company with an international reputation for quality. CEJN markets their products as OEM components to manufacturers of rescue tools and breathing apparatus, as well as into the automotive aftermarket and other end uses.

At the Gurnee facility, CEJN also produces short runs of high-pressure hose assemblies up to 36,250 psi. This shop houses manual lathes, crimping machinery, ultra-high pressure hose test benches, marking equipment and advanced leak testing devices, in addition to the CNC lathe.

Commenting on the flexibility of the EMCOTURN 345-II lathe, Lee Simons further noted the tool data is easily stored and easily retrievable, when needed. Commonly used tool data can be reinserted for new programs, as well. He especially cited the ShopTurn simulation feature as key, because it allows a clear view of the machine path. Training on the machine occurred at the builder's location in Columbus, Ohio, including SINUMERIK CNC and ShopTurn software training from Siemens.

ShopTurn enables extremely short set-up times, owing to the operator prompts to determine workpiece zero points and tool lengths. A CAD reader provided with the system allows importing of DXF files, thus further reducing time to the creation of the program offline and the first part, according to CEJN.