

Quality Assurance Gains on the Manufacturing Floor

ZONTEC'S SPC SOFTWARE INCREASES PRODUCTIVITY FOR GEAR MANUFACTURER

In today's increasingly competitive landscape, companies that do not pay attention to their quality data do so at their own peril, according to Danei Edelen, marketing manager at Zontec Inc. "Capturing and utilizing quality data can reduce scrap, reduce work, increase user productivity, assist with tool lifecycle management and help generate new business."

Zontec Inc., located in Cincinnati, Ohio, is an international developer of Statistical Process Control (SPC) software solutions. The company recently updated its *Synergy 2000* software to maximize the users' access to information. "These new capabilities are focused on running a business more efficiently and effectively," says Warren Ha, Zontec president. "We are leading the industry by providing superior functionality so users have multiple ways to access the wealth of information available at the click of mouse."

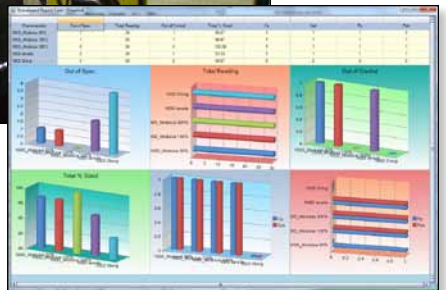
This includes increasing productivity, reducing product defects, boosting production rates and generating new business. "*Synergy 2000* enables you to fine-tune your business by adding value at every step in the process. It's logically designed with the user in mind. Therefore, you are able to rapidly implement a quality solution, saving you time and money. Your users are easily able to navigate the system and utilize numerous ways to input data efficiently. Data is passed through SPC calculations, so that real-time charting and reporting is constantly available for decision-making," Edelen says.

Synergy 2000 is designed in three levels: engineer, manager and operator. This means that as operators are enter-



ing data, managers and engineers can be monitoring and reviewing this data in real-time. If a process goes out-of-specification, the appropriate people can view this information immediately on their screens and automatic e-mail notifications are sent out as well. With the tools available, a customer can integrate *Synergy 2000* with any system in your enterprise. With company-wide monitoring in place, key individuals, regardless of location, can supervise production to meet company objectives. Also, if your industry requires secure controls over your quality data, *Synergy 2000* has such security measures available.

United Gear Gains Business with *Synergy 2000*. When Douglas Winfrey, director of quality, started at United Gear and Assembly, the *Synergy* software had already been purchased, but was not fully utilized. "I inherited *Synergy*, and I enforced it," Winfrey says. He immediately saw the benefits of utilizing the quality assurance soft-



ware. "The real issue was that we were collecting all of this data, but not looking at the data. *Synergy* gave us a way to easily pull up the data and act on what we are seeing; it also gave us the ability to access the data anywhere in the world, including our customer sites."

United Gear has been in business for 50 years. During that time, they have evolved from a family-owned business into a multi-million dollar company and a core supplier of precision gears, shafts and related assemblies to companies in the automotive, agriculture, forestry, construction, mining, marine and rail industries. "We are now expanding our presence along with our parent company, United Stars, based out of Beloit, Wisconsin, into the Pacific Rim and recently opened an office in China,"

continued

Winfrey says.

Once United Gear began using *Synergy*, they found that the software made it easy for individuals without a statistics background to create charts on their machines, setup to receive notifications, reduce the number of errors and assist the inexperienced operator in understanding the process clearly. "It's a very good teaching tool

to be able to explain with visuals to describe where the process is running at and where we want to be," Winfrey says. "Within seconds, we can call up a part number on a machine and know what's going on with that machine or the current production run."

"Since implementing *Synergy*, the reduction in paperwork is huge. Before every entry took us about 3½ minutes

per sample size and now it takes us less than 30 seconds. There are 240 critical characteristics we could be measuring at any given time. Using *Synergy* has saved us about 12 man-hours per day," Winfrey adds.

One of the benefits United Gear has experienced is that they came to a better understanding of their machines and their capabilities. "Through data gathering, charting and analysis, we can analyze data on every product produced in a particular machine. We can get to the root cause, whether it is the people, the process or the machine," Winfrey says. "We run product on several machines; with *Synergy* we can compare a machine's capability, which gives us the least variation and best product. We can see inconsistencies and make systematic changes across the entire process; we can see data points for all products, regardless of machine and resolve inconsistencies for all processes."

Synergy also gives United Gear the ability to effectively manage the life-cycle of its tools. Through the use of Run Charts and other *Synergy* tools they can determine tool life and predict how many parts can run before needing to make adjustments or change out the tool. "We can budget our tool life management more accurately and effectively based on this data," says Winfrey. "*Synergy* can show us if a particular machine can't produce a particular product in a specific tolerance range. This data can then be used to justify procurement of new equipment."

Additionally, *Synergy* has helped United Gear with their Six Sigma and continuous improvement initiatives. "In the aspects of our business where we are using *Synergy*, we have seen our PPM (parts per million) decrease," Winfrey says. "On average, we have reduced our non-conformities by 20 percent. We also have a very low scrap rate in those applications."

Winfrey says they use *Synergy* for new business development. "I have been in meetings at the customer's location where we are discussing a new product. *Synergy* gives us the ability

When You Have Only One Shot At Rotary Accuracy, Make It Count!



Manual Low-Profile Circle Divider

Basic A.G. Davis CIRCLE DIVIDER™ features standard indexing of 360° or 720° positions. Round or square face plates with diameters up to 48". Patented fail-safe lock. Automatic systems available. 36/72 position economy model also available.



Ball Bearing Rotary Table

Angular contact, double row, preloaded ball bearings provide the optimum combination of accuracy, stillness and low friction. Digital readout-radial runout to .000005".



5-Axis CMM

The 5-axes computer controlled special coordinate measuring machine has four air bearing precision linear motions and an air bearing rotary table. Laser measurement incorporating a unique path layout and environmental monitoring compensates for pitch and sag. Air bearing electronic probes contact the part contour. The total system accuracy is .0000050" within the envelope of travel.



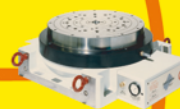
Two-Axis Servo/Rate Rotary System

Vertical 16" faceplate dia. table and horizontal 9" dia. air bearing table with integral motor drive and precision encoder.



Astro Guidance Test Platform

References the north star three axis (Ultradex) index system. System accuracy 0.3 arc second band, PC based control, IEEE-488 interface.



Air Bearing Rotary Table

The ultimate precision rotary table for CMM and other high accuracy applications. Radial runout to .00001 T.I.R. Can be used vertical or horizontal. Servo or standard motor drives.



Automatic NC Precision Trunnion

4th & 5th axis machining capabilities. Three available grades of angular accuracy on both the rotational axis and tilting axis: ± 3 arc second, ± 2 arc second, and ± 0.25 arc second. Face plate platens from 350 mm to 630 mm. Larger sizes available upon request.



50 inch Precision Centrifuge

- Accelerometer Testing
- Constant "G" within (+/- 0.01%)
- 32 Slipping Channels
- 0.2 to 200 "G" Range
- Outputs for rate sensing
- IEEE - 488 Interface

**Inspection
Radial Milling
Calibration
Index Position
Contouring
Circle Division
4th - & 5th Axis
Machining**



Contact us direct or visit our website

A.G. Davis - AA Gage

Telephone: 586-977-9000 • Fax: 586-977-9190

www.agdavis.com e-mail: agdavis@agdavis.com

to log into our server, show them the exact machine that would be used to produce the new product, what tolerance the machine is currently running and the capability history of that machine," Winfrey said. "This type of information shows the customer what they need to see before moving forward. *Synergy* provides us that edge to win the business."

The Future of SPC. From a quality management perspective, Zontec has developed a solution that fully supports mobile technology and cloud computing architecture. Zontec's *Synergy 3000* SPC software was designed from the outset so that users can gather, organize, analyze and report on the huge data sets dictated by real-time, statistical process control over the Internet from highly dispersed global locations. "We see the use of cloud computing and mobile technology particularly applicable as it relates to managing your suppliers," Edelen says. "With *Synergy 3000*, suppliers have access to customer standard operating procedures, engineering drawings and contract specifications during their production runs. Suppliers enjoy data collection and gage interfacing through the browser in addition to charting, process monitoring, real-time feedback and reporting."

For more information:

United Gear and Assembly
1700 Livingstone Road
Hudson, WI. 54016-9365
Phone: (715) 386-5867
www.ugaco.com

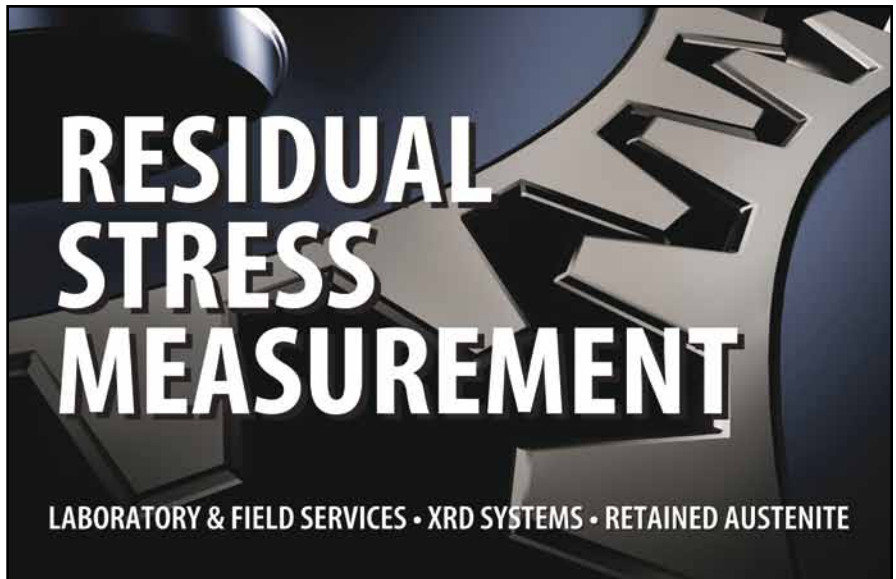
Zontec Inc.
1389 Kemper Meadow Dr.
Cincinnati, OH 45240
Phone: (513) 648-9695
www.zontec-spc.com

GWJ UPDATES GEARENGINEER SOFTWARE

GWJ Technology GmbH, headquartered in Braunschweig, Germany,

recently introduced a new version of its *GearEngineer* software. The version comes with a variety of new features and functions including profile and flank modifications as well as the tooth contact analysis (TCA). Additionally, the user can calculate the load capacity of bevel gears according to ISO 10300. The *GearEngineer* is a software

continued



RESIDUAL STRESS MEASUREMENT

LABORATORY & FIELD SERVICES • XRD SYSTEMS • RETAINED AUSTENITE

Reduce costs and improve quality.

Residual stress plays such a critical role in the fatigue life, cracking and distortion of components, that its characterization is more important than ever. In today's tough economic times, X-ray Diffraction (XRD) residual stress measurement can both improve quality and help lower component cost by reducing scrap rates, shortening design cycles and ensuring full component life.



Our comprehensive line of XRD residual stress measurement systems and full service laboratories have the accuracy, speed, technology and knowledge to keep your product perfect right from the start.

LABORATORY SERVICES



FIELD SERVICES



PORTABLE XRD SYSTEMS



LABORATORY XRD SYSTEMS



www.protoxrd.com
1 (800) 965-8378

USA
Proto Manufacturing Inc
313-965-2900
xrdlab@protoxrd.com

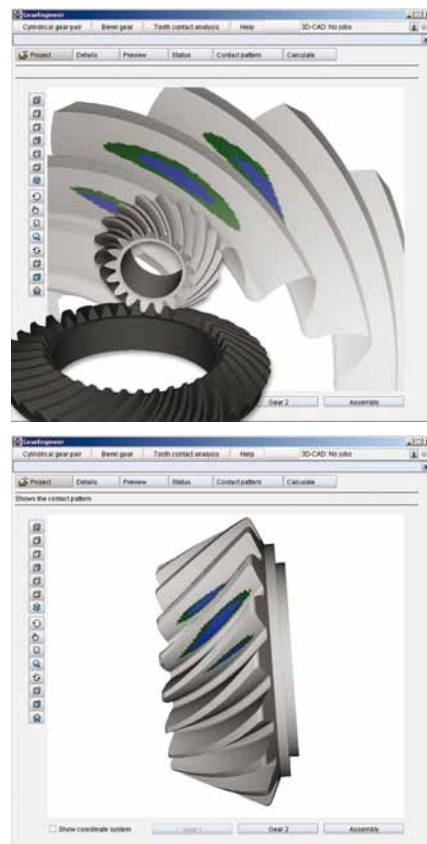
Canada
Proto Manufacturing Ltd
519-737-6330
proto@protoxrd.com

Japan
Proto Manufacturing KK
047-402-2703
info@protoxrd.jp

application for the calculation of the accurate 3-D gear tooth form of cylindrical and bevel gears based on the mathematical simulation of the manufacturing process.

The accurate gear tooth form is the basis for manufacturing gears, in conjunction with multi-axis machining centers or non-cutting manufacturing processes. The standard exchange for-

mat STEP and IGES serve as a neutral file format to transfer the accurate tooth geometry. The geometry data can be used for further developmental purposes, for example for a universal manufacturing or used as 3-D nominal data for additional measurements. Profile and flank modifications were now added to the *GearEngineer* calculation module for cylindrical gears. A drop-



down menu allows the user to select linear and circular tip or root relief as well as symmetric profile crowning.

In addition to the profile modifications, the gear flank modifications lead crowning and profile crowning are available. The user can decide between symmetric and asymmetric lead crowning. End relief can be applied to both tooth ends or to the left or right end of the tooth.

Additionally, the *GearEngineer* now includes TCA to calculate and visualize the contact pattern of gears. After completion of the gear calculation, the tooth contact analysis allows the calculation of the size and position of the contact pattern without load. The contact pattern is visually displayed in the 3-D model. The analysis is possible for external and internal spur and helical gears and helical, straight and Zyklo-Paloid spiral bevel gears. The engineer can optimize spur and bevel gears before the manufacturing begins. Deviations and displacements from the ideal position are taken into account. The new *GearEngineer* version provides the possibility to determine the



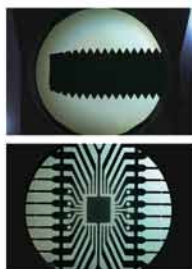
PJ-A3000



PH-3515F



PV-5110



Profile Projectors from Mitutoyo

Mitutoyo offers a series of profile projectors versatile enough to meet any optical measurement or inspection challenge. On the floor or in the lab, Mitutoyo's superior lens technology and lighting options provide bright, crisp image detection ideal for viewing complex profiles. Easy to operate high-precision floating measurement tables offer exceptional speed and accuracy. With a wide range of accessories for a variety of applications, a Mitutoyo profile projector is an instrument you can depend on. To learn more visit www.mitutoyo.com or email us at info@mitutoyo.com

Mitutoyo

Mitutoyo America Corporation
965 Corporate Boulevard
Aurora, Illinois 60502
1-888-MITUTOYO (1-888-648-8869)



Scan this QR code to download our corporate brochure or visit
mitutoyo.com/pdf/MAC_Corp_Brochure.pdf

See us at the upcoming tradeshows:

Westec, Los Angeles, CA

March 27 - 29, Booth 2320

NPE 2012, Orlando, FL

April 2 - 5, Booth 13030

BIOMEDevice 2012, Boston, MA

April 25 - 26, Booth 1015

Precision is our Profession

CMM • VISION • FORM & FINISH • PRECISION TOOLS & INSTRUMENTS • DATA MANAGEMENT

load capacity of straight, helical and spiral bevel gears according to ISO 10300.

For more information:

GWJ Technology GmbH
Rebenring 13
38106 Braunschweig
Germany
Phone: +(49) 531 129 399
www.gwj.de

Birchwood Casey

IMPROVES BLACK OXIDE COATING

Metal surface cleaners and conditioners from Birchwood Casey improve black oxide coating and other metal finishing processes. Available in a range of biodegradable liquid cleaners and mild acid conditioners, they provide the just-right surface preparation to achieve top quality finishes. For example, most machined and fabricated metal components carry cutting oils or coolants that coat the metal surface and collect in threaded holes and recessed areas. Heat treat scale and light rust are also commonly seen. These surface soils must be completely removed prior to blackening or coating in order to achieve high quality results. These conditions are easily handled by choosing the right surface preparation from the following products:

Birchwood Casey's Presto Kleen powdered cleaner and Safe Scrub ST biodegradable liquid cleaner are designed for medium- to heavy-duty soak tank cleaning of iron and steel parts. These products mix easily with water and operate at temperatures of 120–180 degrees F to quickly lift oily residues from the metal surface and hold them in suspension. Their unique blend of detergents make them free-rinsing in cold water, giving them the ability to produce waterbreak-free surfaces that are receptive to subsequent coating operations. Also available is Safe Scrub M for effective cleaning of

light metals, such as aluminum, brass and zinc without discoloring the metal.

Birchwood Casey's Oxyprime primer/surface prep serves as an activator and primer to make the metal surface more receptive to the subsequent coloring or blackening operation. Tool steels and heat treated parts must be activated and/or de-scaled by means of a surface



continued

ECONOMICAL SOLUTIONS FOR PRECISION GEAR GRINDING

Riverside Spline & Gear is proud to feature our new Hofer Rapid 900 Gear Grinder, offering the latest in form grinding technology. With AGMA class 14+ capability, and on-board gear inspection, you are assured that your gear will meet all design specifications.

External Gears

| | |
|-----------------------------|-----------------------------------|
| Gear Diameter | 50-1000 mm |
| Center Distance Above Table | 360-1360 mm |
| Axial Stroke (Max) | 650 mm |
| Helix Angle | +/- 45°, 90° |
| Module | 1-25 mm (extendable to 34 mm) |
| Profile Height | 41 mm (extendable to 60-80 mm) |
| Grinding Wheel Width | 60 mm (extendable to 90 mm) |
| Grinding Wheel Diameter | 400 mm |
| Table Load | 3000 kg |



WITH OVER 45 YEARS OF EXPERIENCE, IT'S EASY TO SEE WHY INDUSTRY LEADING MANUFACTURERS CHOOSE RIVERSIDE AS THEIR #1 GEAR GRIND SOURCE.



Riverside Spline & Gear Inc.
P.O. Box 340 • Marine City, MI 48039
Phone: (810) 765-8302 • Fax: (810) 765-9595
deniset@splineandgear.com
splineandgear.com



conditioner prior to subsequent finishing operations. The Oxyprime solution provides that function for black oxide, cold blackeners and antique finishing. It provides a mild acid surface conditioning to ensure uniform adhesion across the part, without the risk of hydrogen embrittlement. In some cases, the Oxyprime descaling operation can also be used in conjunction

with ultrasonic rinsing to remove all traces of surface particulates, thereby producing a white-glove clean black oxide finish.

Oxyprime is available in powdered and liquid concentrate for a variety of finishing jobs, including activation, oxide removal or the formation of a base coat for subsequent Tru Tempo low temperature black oxide finishing.

All metal cleaners and surface conditioners from Birchwood Casey are available in container sizes for small and large scale finishing operations and for use in various types of process lines, such as black oxide, phosphatizing and other metal coating systems.

Complete technical information for each Birchwood Casey product is available online. A technical service expert is also available by phone to determine which metal cleaner and surface conditioner is best for a specific application.

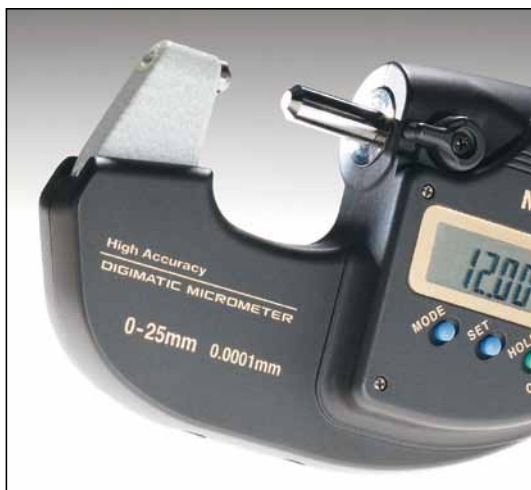
For more information:

Birchwood Laboratories, Inc.
7900 Fuller Road
Eden Prairie, MN 55344
Phone: (800) 328-6156
www.birchwoodlaboratories.com

Mitutoyo

RELEASES HAND-HELD MEASUREMENT TOOL

Mitutoyo America Corporation announces the availability of its new, High-Accuracy Digimatic Digital Micrometer, the first micrometer to offer 0.1 μ m resolution measurement. Now, high-accuracy measurement can be had in a convenient, hand-held tool. The Digimatic Micrometer utilizes the



Gear Solutions From Drake

All Drake Gear Machines are shipped with the latest CNC controls, Gear Smart™ programming, field support and guaranteed performance.

GS-G² Gear Grinders

- Grind 25mm to 350mm tip diameter
- CNC contour diamond roll dressing
- CNC direct drive torque motor work index
- DIN 2-3 quality capable
- User-friendly software

GS-TE-LM Worm Grinders

- Part lengths up to 2m
- Diameters up to 650mm
- Auto load available
- ZK, ZI, ZN, ZA to DIN 1-2 quality capable

GS-RM Rack Mills

- Auto load in a cell
- No pits or platforms
- 10-minute cutter change
- Compare to broaching

GS-H Gear Hobbers

- Up to 1800mm diameter
- Auto load & probe
- Power helix

CS-R Control System Renewal

- New CNC for "brain dead" good iron
- Gear grinders, hobbing machines, thread and rack milling machines
- Work done on your floor
- Only 2 weeks downtime

Drake

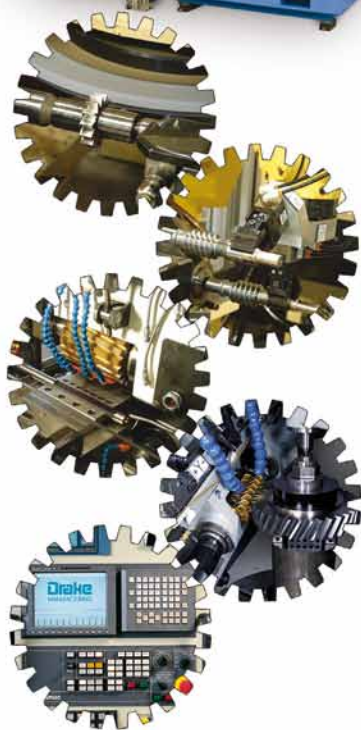
MANUFACTURING
Precision Machines for Threads & Gears

Drake Manufacturing Services Co.
Tel: 330-847-7291
info@drakemfg.com
www.drakemfg.com

Drake Gear Machines
Represented in North America by:

KOEPPER
AMERICA, LLC

Koepper America LLC
Tel: 847-931-4121
sales@koepperamerica.com
www.koepperamerica.com



Absolute rotary sensor (patent pending) manufactured utilizing Mitutoyo's own high precision screw machining technology. This sensor reduces instrument error to $\pm 0.5 \mu\text{m}$ to deliver high accuracy with no trade-off in operability. The Absolute system eliminates the need to reset the origin each time power is turned on thus enabling measurement immediately upon start-up. In addition, the measurement origin can be preset to any value within the display range to reduce set-up time and improve repeatability. The display can be zeroed at any position, making comparison measurement easier. Display resolution can be switched to $0.5 \mu\text{m}$ if $0.1 \mu\text{m}$ measurement is not required.

The Digimatic Micrometer features an extremely rigid frame for stable measurement while a constant-force barrel/spindle mechanism eliminates the possibility of overspeed errors. Transference of body heat to the instrument is reduced by use of a heat shield (removable), minimizing errors attributable to thermal expansion while handheld measurements are performed.

Additionally, it supports output to measurement data applications such as *MeasurLink*, Mitutoyo's proprietary statistical-processing and process-control program which performs statistical analysis and provides real-time display of measurement results for SPC applications. The program can also be linked to a higher-level network environment for

enterprise-wide functionality.

For more information:

Mitutoyo America Corporation
965 Corporate Blvd.
Aurora, IL 60502
Phone: (630) 820-9666
www.mitutoyo.com



FORGED NET and NEAR-NET GEARS

- Save Time and Money
- Dedicated State-of-The-Art Net and Near-Net Gear Manufacturing Facility
- .008 - .060 Stock Allowance on Gear Flanks
- ISO 9001:2008
- TS 16949:2009



Presrite Corporation
Phone: (216) 441-5990
www.presrite.com

© 2011, Presrite Corporation

Micro Precision Gear

UTILIZES HOLROYD GRINDER

Holroyd Precision, a division of the Precision Technologies Group, has recently completed a customer satisfaction survey with major customer Micro Precision Gear Technology Limited of Hemel Hempstead, Hertfordshire. Having supplied Micro Precision Gear Technology Limited with a GTG2 model gear and thread grinder



some eight years ago, the Milnrow, Lancashire operation canvassed Micro Precision Gear Technology's Phil McIntyre, section leader, gear grinding, for feedback on living with the machine on a daily basis.

The GTG2 machine in question is used by Micro Precision Gear Technology Limited in the manufacture of worms, helical and spur gears while Holroyd is also currently working with the company to develop bespoke worm software for the machine. The machine is used to grind worms from 15 mm to 250 mm in diameter with a smallest gear of 0.6 module right up to the largest of 4 module. According to McIntyre, "The machine has been extremely reliable. It's incredibly accurate and will run all day for six days a week. Its flexibility is another major plus. And, just as importantly, it's also remarkably easy to use and program with a new operator usually able to get the hang of things within just two weeks."

The Holroyd GTG2 is an extremely versatile, multi-purpose grinding system for the batch or volume production of precision spur and helical gears, worms, screws and rotors. Sophisticated yet simple to operate, the machine combines rigidity with high power for either CBN or conventional deep grinding operations with class-leading levels of accuracy and finish. Fast setups optimize productivity while the advanced and highly integrated user interface facilitates the production of a finished component from the initial design drawing. In addition to the production of all types of spur, helical and worm gears, the machine can also be configured for grinding ball-screws,

The Solution



ALD Thermal Treatment, Inc.

Providing the finest metallurgical services in a wide variety of markets through Vacuum Treatments and specialized gas quenches.

LEADERS IN THE CONTROL OF DISTORTION

Vacuum Carburizing with High Pressure Gas Quenching
Plasma Carburizing • Vacuum High-Temperature -
Solution Nitriding • Vacuum Hardening • Vacuum Brazing
Annealing • Normalizing • Cryogenic Treatments
Measurement and Testing

GLOBAL SERVICE CENTERS

- Limbach - Oberfrohna
Germany
- Port Huron, Michigan
USA
- Ramos Arizpe, Coahuila
Mexico

www.aldtt.net
www.ald-vt.de

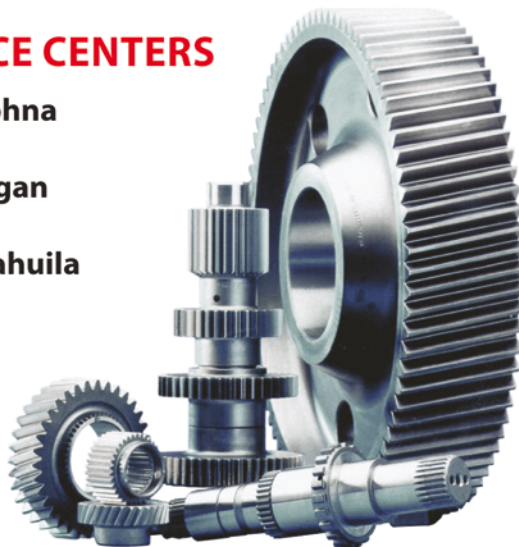


Photo: Buderus Edelstahl GmbH

Michael Pode (Sales) 803-546-6686 or mpode@aldtt.net
 Robert Peters 803-600-8052 or rpeters@aldtt.net

small compressor rotors, internal gears and threads.

Typical applications include high-performance aerospace, automotive, precision motion, low noise and master gears. An on-board 3-D scanning probe maximizes accuracy using profile correction feedback and improves productivity by removing the need for off-machine profile inspection.

For more information:

Micro Precision Limited
Duxons Turn
Hemel Hempstead
Herts HP2 4SB
United Kingdom
Phone: + (44) 1422 241027
www.microprecision.co.uk

Holroyd Precision
Harbor Lane North
Milnrow, Rochdale
Lancashire OL163LQ
United Kingdom
Phone: + (44) 1706 526 590
www.ptgltd.com

Grieve

OFFERS HIGH TEMPERATURE INERT ATMOSPHERE CABINET OVEN

No. 855 is a 1,250-degree Fahrenheit electrically-heated, inert atmosphere cabinet oven from Grieve, currently used for heat treating at the customer's facility. Workspace dimensions on this oven measure 38" x 26" x 38". 40 kW are installed in Incoloy-sheathed tubular elements to heat the oven chamber, while a 1,500 CFM, 1½ HP re-circulating blower provides horizontal airflow to the workload. This Grieve cabinet oven features 10" insulated walls comprising 2" of 1,900-degree F block and 8" of 10 lb/cf density rockwool insulation, Type 304, 2B finish stainless steel interior with continuously backweld-



ed seams, plus inner and outer door gaskets with the inner gasket sealing directly against the door plug while the outer gasket seals directly against the face of the oven. Full inert atmosphere construction further includes a pressure regulator, flow meter, pressure gauge, internal high-temperature gasket, all welded expansion connection in door-

continued

SICMAT RASO 200 dynamic Gear shaving machine



BEST PERFORMANCE BEST PRICE

"Faced with today's global challenges gear manufacturers need not only machines that reliably produce high quality parts, but also machines that are a good value.

For gear shaving the Raso 200 Dynamic fits the bill."

Ettore Miletto
Ettore Miletto / Sicmat CEO

RASO 200 - RASO 400 - RASO 600 - RASO 250 TP/TPC
A complete range of gear shaving machines for
advanced gear manufacturing

www.sicmat.com



Agents for U.S. and Canada: Star SU LLC
5200 Prairie Stone Parkway, Suite 100
Hoffman Estates, IL 60192

www.star-su.com/dynamic



way throat, air jacket on inner oven for cooling, ½" thick silicone rubber atmosphere seal, blower shaft seal, positive latching door hardware, adjustable offset door hinges, outlet with pressure relief, interior seams welded gas-tight and all wall penetrations fitted with compression fittings. A 325 CFM blower pulls air through the air jacket on the inner oven for cooling. Controls on No. 855 include a special heating/cooling temperature controller to control heating elements for heating and modulating damper on cooling blower for cooling. The oven also has an SCR power controller and circular chart recorder onboard.

For more information:

The Grieve Corporation
500 Hart Road
Round Lake, IL 60073
Phone: (847) 546-8225
sales@grievcorp.com
www.grievcorp.com

LMC RELEASES CHANDOX SE SERIES CHUCKS

Chandox SE Series Super Thin Chucks are now available from LMC Workholding. These chucks are well suited for holding workpieces for gaging and metrology applications. The chuck knob is rotated directly for gripping and loosening without the need for a handle. The SE Series chuck bodies are made of durable steel. Jaws are reversible to grip various sizes more conveniently; small sizes of 0.8 mm can be gripped with 2" chucks. LMC Workholding engineers and manufactures high quality chucks and cylinders along with special workholding devices, including aluminum wheel chucks, high volume machining power chucks and fixtures, standard and special hydraulic steady rests,

special application and large cast type manual steady rests, Stiefelmayer specialty clamping tools, and Chandox brand chucks and cylinders. LMC Workholding will be exhibiting at IMTS 2012 in Booth No. W-1314.

For more information:

LMC Workholding
1200 West Linden Avenue
Logansport, IN 46947
Phone: (574) 735-0225
www.lmcworkholding.com



MAE Press Technology SERVES DIVERSE MARKETS

During the upcoming AISTech show, May 7-10 in Atlanta, MAE Maschinen-und Apparatebau Götzen GmbH (Erkrath, Germany) will display its various press technologies for the iron and steel industry and related business sectors in Booth 1536. MAE recently announced its formation of a partnership with American Wera here for representation throughout North America. In the last decades, MAE has developed increasingly from a manufacturer of standard hydraulic presses to specialists for select niche markets. The company has established a market position with products in the fields of straight-

continued





ATLAS

Ipsen's ATLAS® integral quench furnaces are highly engineered, sophisticated machines that are easy to operate and maintain, all while being extremely cost effective. ATLAS delivers top quality uniformity through cutting-edge technology and design:

- Intelligent controls, Carb-o-Prof®, provide you with your very own electronic metallurgist
- SuperQuench with adjustable oil speed and four 40HP agitators
- Muffle system for uniform temperature control
- Safety – all ATLAS furnaces are water-free for maximum safety
- 30% less gas consumption
- Recon® burners – single ended recuperated tubes (SERT)

HybridCarb®

The unique HybridCarb® gassing system from Ipsen is an ultra-efficient gassing system designed to replace endothermic generators and other gassing systems. Its core strength is precision gas control. Instead of burning excess gas off, the process gas is reconditioned and reused, increasing efficiency up to 90%.

Other benefits of HybridCarb include:

- Quick and easy hookup
- Increased carburizing efficiency
- Reduces CO₂ emissions by 90%
- Significantly less expensive to operate than endogenerators
- Consumes significantly less gas
- Environmentally friendly and cost efficient
- Lowers heat output creating a more comfortable work environment
- Powers up and down at anytime, quickly and easily



For more information please visit www.IpsenUSA.com



www.IpsenUSA.com



SPEED UNIFORMITY EFFICIENCY

ening machines, hydraulic presses and assembly machines, serving metals producers, rail, heavy equipment, energy and marine markets.

Straightening. MAE has the broadest portfolio of manual and automatically controlled straightening machines for handling round, profiled and complexly shaped workpieces available worldwide. Press forces from 15 to 25,000

kN make it possible to straighten workpieces with lengths from 40 mm to 30 m and weights from 5 g to 20 tons. Straightening accuracy to 0.01 mm is possible. In addition to the conventional bending-straightening method, MAE also offers peening-straightening for through-hardened workpieces and torsion-straightening for twisted section bars. The MAE straightening controller for the manual straightening presses in the S-RH and P-H RH Series guarantees precise and repeatable metalworking and does not necessitate specially trained operators. Measurement and straightening in one setting ensures optimal cycle times. The M-AH, ASV and ASRU Series enable automatic straightening of small, large and complex shaped workpieces. The software of the RICOS straightening controller is the result of decades of experience with various applications. Innovative

MAE design ideas are further making the straightening process increasingly more powerful and faster. Various interlinking concepts allow continuous operation with low manpower requirements.

Hydraulic presses. The broad range of hydraulic standard presses in the S and DS Series with C- and O-frames as well as the four-column presses in



the VS Series are based on a modular system. By recombining and adapting the individual modules, MAE finds an inexpensive, individually optimized solution with press forces up to 25,000 kN for customer needs. Hydraulic presses are exposed to considerable stresses in daily use. With 60 years of experience, MAE has a reputation for sturdy dimensioning on all components.

Assembly. Whether you want to assemble gear parts, rotor shafts or wheelsets, MAE offers many suitable solutions. The MAE machine Series S and M-S with hydraulic or mechanical servo drive are robust machines tailored to customer application. The OPUS controller with flexible software that can be modified to fulfill customer-specific requirements guarantees control and documentation of the entire assembly process. Our horizontally

acting wheel set presses in the RADS Series with forces up to 8,000 kN are the industry choice for mounting and dismounting wheel sets from railway vehicles. They stand out primarily for their innovative underlying concept, rational interlinking systems and extensive control functions.

Service. An innovative and high-quality machine is only the basis for high customer satisfaction. Equally important for continuous duty with high availability are quick-response service from experienced technicians and spare parts available immediately from stock. North American installation and service is provided by American Wera service technicians in Ann Arbor, Michigan and Queretaro, Mexico. Additionally, optimally staffed service centers are located in Erkrath, Germany and Beijing, China. Telephone support and remote diagnostics onboard the machines usually allow MAE to correct minor problems without complication or onsite service.

For more information:
American Wera
4630 Freedom Drive
Ann Arbor, MI 48108
Phone: (734) 973-7800
Fax: (734) 973-3053
joseph@american-wera.com
www.american-wera.com

For more information:

American Wera
4630 Freedom Drive
Ann Arbor, MI 48108
Phone: (734) 973-7800
Fax: (734) 973-3053
joseph@american-wera.com
www.american-wera.com

Iscar

OFFERS FACE MILLING SOLUTION

Helido S890 FSN is a new family of right-hand indexable face mills with an 88 degree cutting edge angle with eight helical cutting edges, which can be used for up to 9 mm depth of cut. The new family was designed for rough to semi-finish, high-efficiency face milling, primarily on cast iron and steel components. The Helido S890 FSN face mills are available in a diameter range of 50 to 160 mm in coarse and fine pitch configurations. Every cutter body features coolant holes directed to

continued

Quality Gears...



Save 20% on
your first order!

(Scan tag or visit link by 8/31/2012)



www.solaratm.com/gear-technology

Start with Quality Heat Treating!

Vacuum Heat Treating | Vacuum Carburizing
Vacuum Brazing | Vacuum Gas Nitriding





When failure is not an option

Bodycote means precision. Bodycote means quality. Bodycote means your most vital industrial gas turbine parts will operate at peak performance without fault every time. Your business depends on it. Our environment depends on it. Lives depend on it.

With the highest standards and more than 170 accredited facilities in 27 countries, Bodycote is the world's leading partner in thermal processing.

It's a simple thing, really. We make products stronger to keep your business safer.



www.bodycote.com/gear

the insert cutting edges, for the most efficient cooling effect.

The inserts feature an advanced cutting geometry with positive rake, that ensures smooth milling with soft entry to and exit from material. They are produced mainly from the latest Iscar Sumo Tec carbide grades, providing suitable performance and tool life. The winning combination of effective geometry, innovative carbide grades and eight cutting edges, enhances productivity and reduces operational cutting costs. The new tools provide a very attractive solution for face milling applications regarding price per cutting edge. The Helido S890 FSN family is a suitable choice for general milling, especially in applications requiring machining close to shoulders or fixture constraints.



For more information:

Iscar Metals Inc.
300 Westway Place
Arlington, TX 76018-1021
Phone: (817) 258-3200
Fax: (817) 258-3221
www.iscar.com

Ticona

SUPPORTS HI-LEX
POWER LIFT GATE
TRANSMISSION

An innovative transmission from Hi-Lex America Inc. continues to reliably and quietly open and close auto-

otive lift gates thanks to design and development assistance from Ticona Engineering Polymers, which helped the automotive tier supplier create new injection molded high-precision plastic shafts and gears.

"For several years, Hi-Lex customers have used a two-stage reduction transmission that relies on precision steel ball bearings mounted on plastic shafts and accompanying 2.5-inch diameter plastic gears to achieve the desired reduction between the electric motor and a flexible torsional cable assembly to lift and close big, heavy automotive rear lift gates," said Fred Eberle, technical engineer at the Hi-Lex Automotive Center in Rochester Hills, Michigan. Hi-Lex is a supplier of automotive electromechanical, power closure devices and control cables. "A first generation model used a powder metal shaft system, which was subsequently replaced with a plastic shaft system that provides an



immense improvement in NVH (noise, vibration and harshness) and makes our customers very happy."

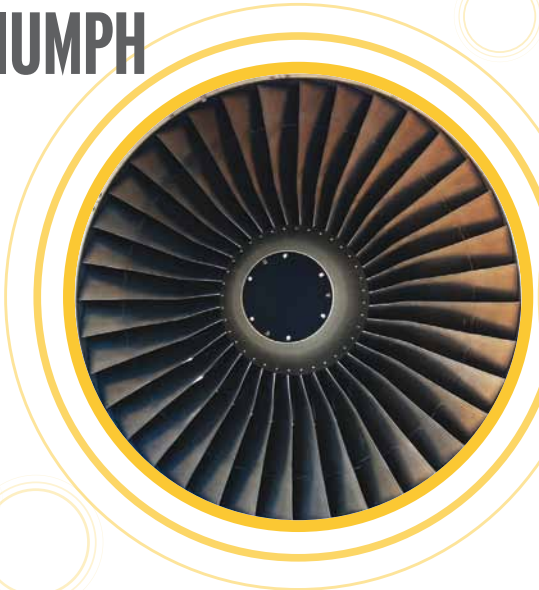
With input from Ticona, the American Gear Manufacturers Association, Ohio State University Gear and Power Transmission Research Laboratory and gear software developer Universal Technical Systems, Hi-Lex optimized and refined

the second generation lift gate transmission via extensive research and development and testing. It relies on first- and second-stage plastic splined shafts attached to plastic gear wheels in a gearbox with a rated torque output capacity of about 12 Newton meters (106 inch pounds).

"From the outset we knew we want-

continued

TRIUMPH



DISASTER



The difference between triumph and disaster can often be invisible to the naked eye. That's why you need absolute precision in the manufacture of engineering components.

Incorporating Holroyd, Binns & Berry, Crawford Swift, PTG Heavy Industries and Precision Components, the Precision Technologies Group is a world leader in the manufacture

of milling systems, special purpose machine tools and ultra precision components for HVAC, aerospace, motor racing, medical, marine, steel, oil and gas.

In fact, precision's not just our middle name; it's our first name too. Which is why PTG is known, globally, as the first name in precision.



Holroyd Precision Limited

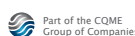
Tel: +44 (0)1706 526590

Fax: +44 (0)1706 353350

Email: info@holroyd.com

www.holroyd.com

PTG. ABSOLUTE PRECISION MAKES ALL THE DIFFERENCE



ed to design the transmission with plastic gears to reduce cost, weight and especially, noise," Eberle said. "We knew Ticona had the gearing and material expertise to help Hi-Lex achieve its business goals."

To avoid any timely and costly setbacks during development of the two-stage transmission, Hi-Lex established a plastic gear team early on that includ-

ed Eberle and David Sheridan, senior design engineer at Ticona. The team defined, analyzed and highly optimized the design to take advantage of many considerations unique to plastic gearing. These considerations can be significantly more complex than those for standard metal gears and they pose challenging implications for gear and drive designers.

"Although Eberle has extensive experience and skill in regards to gearing and drive development, the Ticona/Hi-Lex gear team took the design and optimization process to the highest level of geometry analysis, material application and plastic gear experience," Sheridan said. "Ticona used its 50-plus years of plastic gear experience to help Hi-Lex develop this high-precision plastic gear transmission."

Once the requirements were defined, the team identified materials for the gears and shafts that would maintain the required mechanical properties and dimensional stability, even at elevated temperatures. The gear team selected Ticona grades of Celcon acetal copolymer (POM) and Celstran long fiber reinforced plastics (LFRT): Celcon M90, a general purpose, unreinforced POM that provides a good balance of toughness and fatigue strength for the first-stage gear and shaft, Celcon GC25T, a 25 percent glass-coupled POM that provides the necessary stiffness and fatigue strength for the second-stage output gear and Celstran PA 66-GF50-02, a 50 percent long glass fiber polyamide 66 with high strength and stiffness combined with high heat deflection for the second-stage output shaft.

"For several years, original equipment manufacturers have used our power lift gate transmissions in a variety of automotive platforms," Eberle said. "Not once has a gear broken, worn out or failed in any of our testing, even with multiple design lives, or in service. The gears are nice and quiet. In fact, they get even quieter at elevated temperature, exactly like they were designed to do." Added Sheridan: "It's nice when things work out the way you expect them to. You know you have it right when the design behaves the way the analytical models predicted it would."

For more information:

Ticona
8040 Dixie Highway
Florence, KY 41042
Phone: (800) 833-4882
www.ticona.com

VDI

Register now!
www.transmission-congress.eu

International VDI Congress

Drivetrain for Vehicles 2012

June 19-20, 2012, Friedrichshafen, Germany



- + The most important venue for transmission experts
- + Huge accompanying trade exhibition
- + Simultaneous translation

With plenary lectures by:



Dr. Stefan Sommer
ZF Friedrichshafen AG



Dr. Werner Philipp
Robert Bosch GmbH



Mihir Kotecha
GETRAG Corporate Group



Christian Chehab
PSA Peugeot Citroën



Rolf Najork
Schaeffler Gruppe



Dr. Peter Ottenbruch
ZF Friedrichshafen AG



Jung June Kim
Hyundai Motor Company



Dr. Martin Koers
Verband der Automobil-industrie (VDA)

Gold sponsors:



GETRAG



Romax
TECHNOLOGY



Organised by VDI Wissensforum | www.transmission-congress.eu
Phone +49 211 6214-201 | Fax +49 211 6214-154