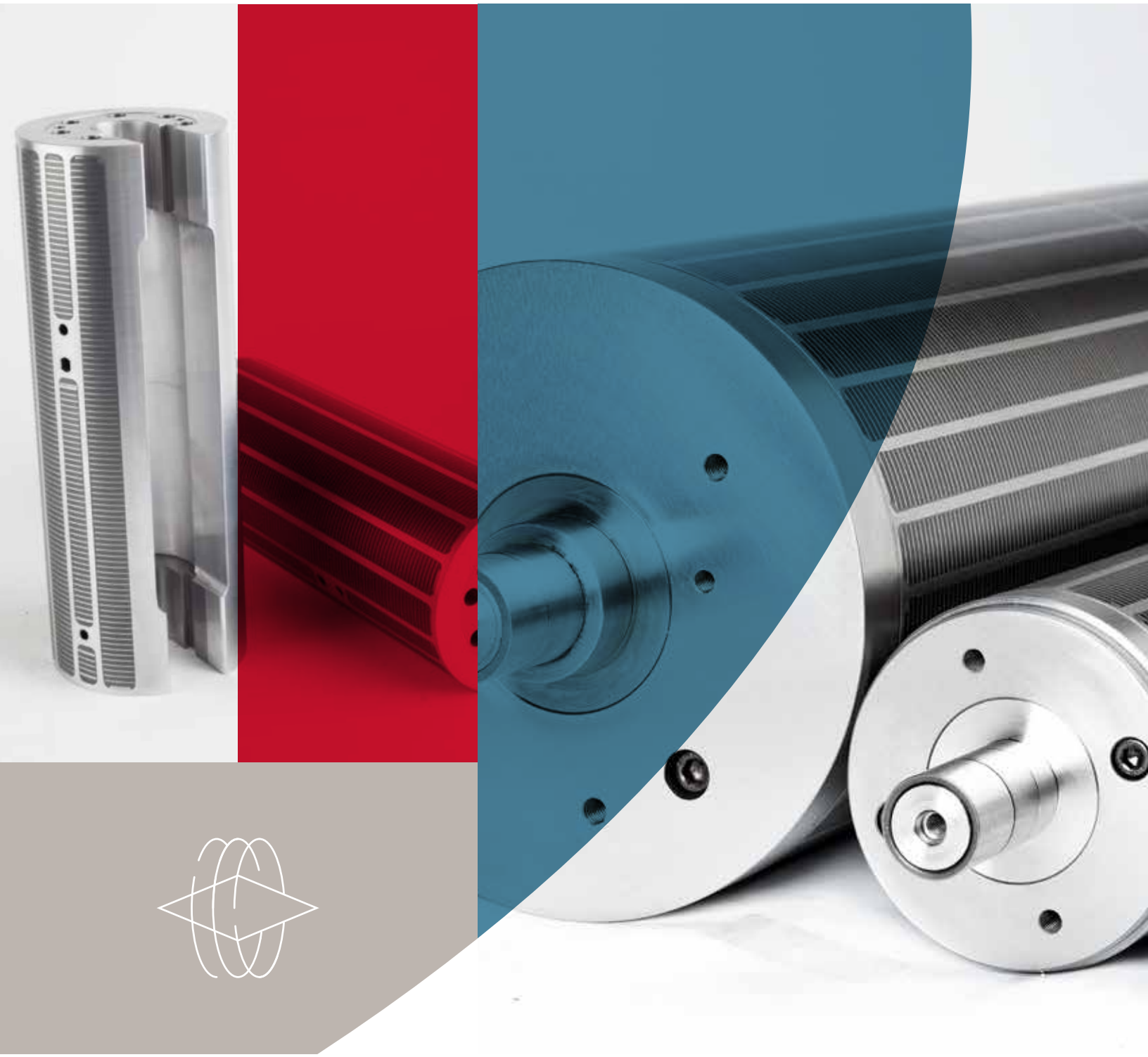
BUNTING®

GLOBAL. MAGNETIC. FORCE.™



Printing

Decorating and Converting Cylinder Capabilities

About BUNTING

Bunting is an industry leader in the design, manufacture, and sales of cutting-edge magnetic equipment used in applications such as magnetic separation, metal detection, conveyor systems, magnetic printing cylinders, die cutting cylinders, and more. All of the products we sell are custom-designed by our engineering team. We work with customers to determine their exact needs and develop a product that will perfectly suit the challenges of the industry they are working in and the materials they are handling, as well as being designed to fit within the existing layout of the customer's facility.

Since 1959, Bunting has been a family-owned, family-operated company. Headquartered in Newton, KS, Bunting currently has multiple branches within the United States as well as abroad in the United Kingdom. We are committed to upholding the values of innovation, dedication, and hard work that Bunting was founded upon sixty years ago.

As technology continues to advance across every industry, Bunting remains committed to integrating new technology into our products, creating solutions that address modern industry challenges, and continuing to expand our domestic and international reach.

Bunting-Newton primarily focuses on magnetic equipment, and Newton, Kansas has served as the company's headquarters since 1979. Here, we design and manufacture magnetic separation, metal detection and material handling equipment as well as a complete line of printing cylinders. With a team of engineers using world-class, computer-aided design equipment, we can customize and develop products to fit any application or production line.

Bunting-DuBois has a unique role as it is the only North American manufacturer of compression bonded, injection molded, and hybrid magnets used in custom designed permanent magnet assemblies. These assemblies are used in the military, aerospace, automotive, and other industrial and commercial industries.

Bunting-Elk Grove Village is home to the company's Magnet Materials division. Bunting-Elk Grove Village provides the largest online selection of permanent magnets and magnetic equipment, with all in-stock items able to be shipped within 24 hours of an order being placed on its website, BuyMagnets.com.

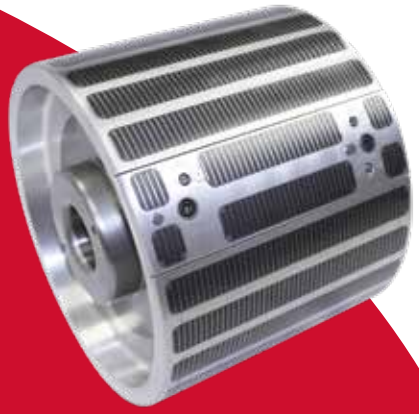
Bunting-Berkhamsted provides total magnetic solutions—from individual magnets and magnetic sub-assemblies to magnetic separation, material handling, and metal detection equipment to various industries throughout Europe and the UK. Bunting-Berkhamsted also manages E-magnets.com, where customers may purchase a wide variety of commonly used magnets.

Bunting-Redditch provides a complete line of magnetic separation, recycling, and metal detection equipment to industries across the globe through a worldwide network of distributors.

Bunting®

Magnetic Technology for All Industries

The unique benefits of magnetic technology can be utilized across a wide range of applications, and Bunting is always looking to the future regarding new challenges that present themselves in the many industries we work with. Bunting engineers are constantly working to develop new technologies and improve upon our existing product lines. Bunting custom designs, manufactures, and distributes a broad selection of printing products.



FOOD AND PHARMACEUTICALS

PLASTICS

RECYCLING

AUTO SHREDDING

AGGREGATE, MINING MINERALS

CERAMICS

TEXTILES

METAL STAMPING & FABRICATING

PRINTING, DECORATING AND CONVERTING

CUSTOM MAGNETS AND MAGNETIC ASSEMBLIES

STOCK MAGNETS & MAGNETIC TOOLS

Across all the industries Bunting works with, our commitment to providing quality products and customer service remains consistent. Bunting enthusiastically offers custom designed applications for customers bringing unique challenges to the table, and we take pride in working individually with each customer in order to provide the best product possible.

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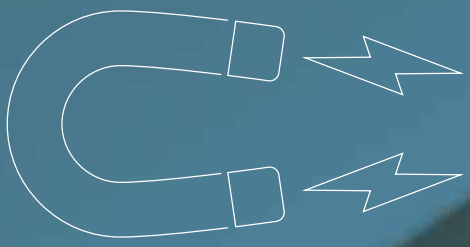
Permanent Magnets:

Permanent magnets are essential to virtually every type of modern technology and convenience. Being able to provide the optimum magnetic solution to the customer requires in-depth knowledge of the full supply chain. Bunting's team of magnet experts and engineers is fully equipped with this knowledge. Bunting entered the magnetics industry in 1959 as a magnet distributor and rapidly grew to a manufacturer of magnetic products, focused on custom design and customer-focused engineering. Today, Bunting is a leader in manufacturing and designing a diverse range of innovative magnetic technologies across industry sectors. Listed below are the general permanent magnet types that are used in Bunting products.

Ceramic

Ceramic magnets, or ferrite magnets, are low cost, lightweight, moderate energy permanent magnets capable of withstanding operating temperatures of up to 480°F. They are highly corrosion resistant and work well in high volume applications. These qualities make them a popular choice in manufacturing and consumer applications such as speaker magnets, DC motors, reed switches, sweepers, MRIs, and automotive sensors. Ceramic magnets can be made in many shapes and sizes, can be ground to intricate and accurate shapes, and can even be designed to be small enough to be used in micro applications.



Alnico Magnets

Alnico magnets are alloys comprised of aluminum, nickel, iron, and cobalt. They have the highest operating temperature and temperature stability of any permanent magnetic material. They retain approximately 85% of room-temperature magnetization at temperatures of up to 1,000°F. They possess high residual induction as well as relatively high energies. Alnico magnets naturally possess an excellent corrosion resistance. This makes surface treatment unnecessary, although they may still be easily plated if desired. Alnico magnets may be produced by either casting or sintering.

Neodymium Iron Boron Magnets

Neodymium magnets are a type of rare earth magnet and are the most common rare earth permanent magnets in the world. They are composed of Neodymium (Nd), Iron (Fe) and Boron (B), and exhibit the highest maximum energy product of any permanent magnet material. However, these magnets are vulnerable to corrosion if they are exposed to the elements. To protect the magnet from corrosion, the magnet is usually coated with nickel. Other coating options are aluminum, zinc, tin, copper, epoxy, silver and gold.

- These high power magnets achieve maximum performance while maintaining minimum size.
- Can be made in blocks, rings, arcs, discs, spheres, trapezoids, triangles, and many other shapes.
- Ni-Cu-Ni plating is most commonly applied, other coatings/finishes available.
- Radially aligned magnets are available to replace arcs.

- Grain boundary diffusion is now available in commercial quantities.
- High-temperature neodymium magnets can safely be used at operating temperatures up to 300° F (149° C). Special grades are also available that can operate in excess of 392°F (200°C).

Plastic Bonded Neodymium Magnets

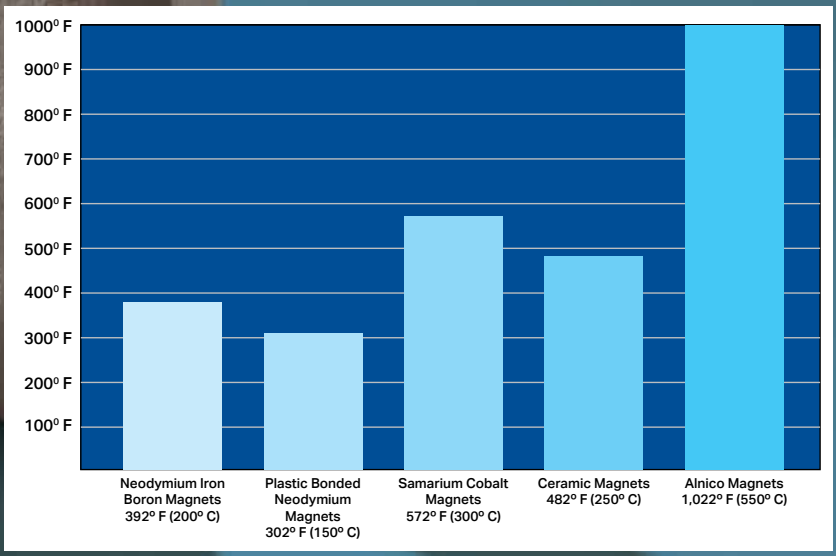
These magnets are-cost effective while offering high performance and tolerances in addition to low electrical conductivity. It is possible to multipole magnetize them as a complete ring, and they can be designed to achieve specific flux density profiles. These are especially well suited for applications such as minimizing cogging torque in motors. These injection molded magnets are an excellent choice for higher volume applications. Compression bonded magnets can also be easily machined, making them suitable for low volume production in manufacturing magnets with multipole magnetization, skew angled poles, and various other directions of magnetizations. Magnetizing patterns are only limited by whether or not a magnetizing coil fixture can be produced to give the required magnetizing pattern.

- Bonded NdFeB magnets can be compression or injection molded to net shape. These high tolerances can be achieved without the need for further machining.
- Injection molded magnets are available in both neodymium and ferrite varieties.

- Injection molded ferrite magnets offer high durability and resistance to shock, as well as a low cost and extreme resistance to corrosions and conditions such as low density.
- Available in high tolerance and complex shapes.
- No coating required, although black epoxy and Parylene coatings are available.

Samarium Cobalt Magnets

Samarium cobalt magnets are rare earth magnets that offer high maximum energy products and can operate in high temperature environments. They are extremely strong and typically allow for smaller size magnet profiles. Though not as strong as neodymium magnets, samarium cobalt magnets present three significant advantages. They work over a wider temperature range, have superior temperature coefficients, and also have a greater resistance to corrosion. Special coatings are available for specific marine and automotive applications. Samarium cobalt magnets are known for their excellent temperature stability—maximum use temperatures are between 250 and 550°F; Curie temperatures range from 700 to 800°F.



BUNTING®

Precision, Efficiency, and Quality for Printing

BUNTING is the premier source for printing, coating and converting cylinders used for metal containers, plastic containers and container lids, folding cartons, corrugated packaging, labels, and POS displays. Throughout the printing industry, there are thousands of BUNTING magnetic and non-magnetic cylinders in use today, covering nearly every type of packaging. We encourage end-users to inquire about BUNTING cylinders for their equipment directly through their OEM when possible.

Our team of salespeople, engineers, and manufacturing personnel have hundreds of years of combined experience in making the best magnetic cylinders available. That's why BUNTING is one of the most respected names in the print industry. From offset printing to flexographic, and letterpress to embossing, BUNTING magnetic cylinders can make your label changes, die cutting, and hot stamping go faster, be easier, and improve your bottom line.

BUNTING stands behind the product unlike any other manufacturer. We provide a one-year warranty on materials and workmanship with a lifetime guarantee that our magnets will not fail when installed on the machine they were originally purchased for. That's because at BUNTING, we know magnets better than any printing or die cutting cylinder manufacturer in the world.

DECORATING CYLINDERS FOR 2-PIECE CAN DECORATOR EQUIPMENT

The 2-piece can industry uses BUNTING magnetic cylinders worldwide for all brands of metal decorators. Our manufacturing accuracy, product durability, rapid delivery, and industry knowledge has made us the industry leader. Whether you have a Rutherford, Concord, Rosario, Unimaq, Hinterkopf, Mall//Herlan, Sovereign, benpac, or any other brand of 2-piece can decorator, BUNTING can make cylinders to fit your machine.

TWO PIECE CAN

STOLLE CONCORD® METAL DECORATORS

If you run a Stolle Concord, you most likely already have BUNTING cylinders. The standard Concord cylinder is made in four different sizes to meet today's wide range in can sizes. From the slim, sleek stubby, and standard size cans to the jumbo 25 ounce beverage can, aluminum bottle, and 1 piece aerosol, the Concord cylinder is up to any challenge.

Manufactured from a solid aluminum billet, this cylinder is designed to reduce weight while maintaining durability. Heat treated steel hubs reduce the wear of constant label changes while holding precise registration. The Concord is machined to a TIR tolerance of .003" to provide excellent registration of DLE printing plates. It is dynamically balanced for optimal decorator speed of 1100 RPM. Standard body lengths available are 7.2500"/7.500"/9.2500"/11.000".

Features and Benefits of Stolle Concord:

- Sturdy yet lightweight design reduces fatigue and maintains durability.
- Heat treated steel hubs resist wear and hold precise registration.
- Excellent registration of DLE printing plates with TIR tolerance of .0003"
- Balanced for optimal decorator speed of 1100 RPM.
- Standard body lengths available are 7.2500"/7.500"/9.2500"/11.000".

STOLLE CONCORD® ADJUSTABLE REGISTRATION (U.S. Pat. No. 9,120,301)

(Available exclusively through Stolle Machinery)

Sometimes, plate registration just does not want to cooperate, especially if you run dual plates on the same cylinder. The Concord has an excellent registration system, but, as everyone knows, prepress is critical to proper registration. Occasionally during prepress, registration holes get stretched out or are not punched correctly because the plate was not inserted properly in the punch press. The Adjustable Registration Concord is designed to take away some of the frustration of mounting two plates on the same cylinder without necessarily having to make a new plate.

The adjustable registration bar uses 3 fine eccentric adjustment screws that permit adjusting the plate radially and circumferentially. Plate can be skewed left, skewed right, raised or lowered a total of .020" in each direction. Cap screws tightly lock the plate in place. All components can be easily disassembled for cleaning and lubrication.

Features and Benefits of Stolle Adjustable Registration:

- Allows for easier plate registration when dual plates are being mounted on the same cylinder.
- Adjustable registration bar can adjust plates radially and circumferentially, allowing for plates to be skewed left, skewed right, or up and down for a total of .020" in any direction.
- Cap screws lock plate tightly in place.
- Easy disassembly expedites completion of maintenance tasks.

TWO PIECE CAN

STOLLE MECHANICAL LOCKUP CYLINDER

(Available exclusively through Stolle Machinery)

Not a fan of magnetic cylinders? BUNTING has you covered with our mechanical lockup Concord cylinder. Like all of our Concord cylinders, the Mechanical Lockup is machined from a solid billet of aluminum. The machined core reduces weight while the precision anodized hard-surface coating hardens the aluminum body for durability. Heat treated steel hubs reduce the wear of sliding the cylinder on and off the shaft. A steel lockup system with heat treated steel clamps hold plates precisely and tightly. It has a TIR tolerance of .003" for optimal registration.

Features and Benefits of Stolle Mechanical Lockup Cylinder:

- Non-magnetic design is lightweight and durable.
- Heat treated steel hubs and clamps reduce overall wear and hold plates precisely and tightly.
- TIR tolerance of .0003" for optimal registration.

CONCORD SETUP CYLINDER

(Available exclusively through Stolle Machinery)

If you are rebuilding your Concord, make certain you have your shafts aligned. The Concord setup cylinder is ideal for measuring runout on the heel and toe of each print station. Setup cylinders have no registration pins to get in the way. All cylinders are made from solid aluminum with a machined core to reduce weight. Entire cylinders are precision anodized for long wear life. Get quick registration readings you can trust.

Features and Benefits of Concord setup cylinder:

- Ideal for measuring runout during initial setup of new machine, as well as after shaft maintenance.
- Provides quick, accurate registration readings.
- No registration pins to get in the way.
- Lightweight cylinders are precision anodized for long wear life.

TWO PIECE CAN

RUTHERFORD CYLINDER

The BUNTING Rutherford cylinder is designed for rugged use in a can plant. The body is machined from a solid aluminum billet for weight reduction. Heat treated steel rings inside the core reduce wear and seizing during installation, keeping the cylinder accurate. A spiral twist to the magnetic cells allows plate contact on a magnetic surface no matter where the tail end of the plate stops. Also available with traditional straight magnetic cells for the most economical cylinder available. Dynamically balanced for optimal decorator speed of 2200 rpm. Standard body lengths available are 7.000"/7.250"/10.500".

Customer specific registration is available with two and three pin registration for exacting plate alignment. Both round and obround pins are made from precision hardened drill rod and installed in ½" plugs embedded in the cylinder body.

Features and Benefits of Rutherford cylinder:

- Designed for rugged use in can plants—construction reduces weight but maintains durability.
- Heat treated steel rings inside the core reduce wear and reduce seizing during installation to keep cylinder accurate.
- Spiral twist magnetic cells allow plate contact on magnetic surface regardless of where end of plate stops.
- Economical straight magnetic cell option available.
- Dynamically balanced for optimal decorator speed of 2200 rpm.
- Standard body lengths available are 7.000"/7.250"/10.500".
- Customer specific registration is available.

RUTHERFORD WITH ECCENTRIC° HUB

The BUNTING Rutherford with the eccentric° rotating hub gives radial and axial adjustment for plate registration and shaft alignment. These steel hubs feature tension set screws to secure the cylinder to hub location.

BUNTING BRINGS DECORATOR CYLINDER PRODUCTION INTO THE AUTOMATED MANUFACTURING ERA:

Late in 2021, a decision was made to expand the production capacity of the 2-piece can decorator cylinders that BUNTING is known for. After carefully investigating all of the capacity expansion options and the Company decided to expand operations in a dedicated facility located near the Corporate Headquarters. Once the building was acquired, the operation started with the acquisition of multiple 7-axis mill/turn machines for which the Company's Advanced Product Engineering was tasked with automating the mill/turn loading and unloading processes. In addition to the mill/turn machining centers, the Company acquired multiple new CNC ID/OD grinding machines. The loading and unloading processes for these machines was also tasked to the Company's Advanced Product Engineering. Additional CNC equipment and custom-designed automated assembly equipment for installing the magnets and pole pieces into the cylinders were installed, to keep production capacity at a maximum with manpower needs maintained at a minimum.

No automated plant is complete without a well-designed and documented QC process. To streamline the inspection process required for 100% product inspection, Bunting purchased from Keyence, one of the top names in CMM Measuring Equipment, a new coordinate measuring system with a hand-held probe that relayed 3-D positioning back to a computer. This new Keyence CMM model is capable of measuring the 2-micron tolerance required for some of the production steps on decorator cylinders. The Keyence CMM that BUNTING acquired is capable of measuring both ID and OD bores, even ID bores on angles and tapers. It automatically records every measurement in a file linked to a specific product serial number for future reference.

BUNTING's new decorator facility will have the capacity to manufacture 100% of the 2-Piece Can Industry's requirements for decorator cylinders and most decorator shafts, for several decades.

INTRODUCING THE NEW "CONE" CYLINDER AND SHAFT ASSEMBLY FROM BUNTING!

With the continued growth of the beverage can industry, Bunting has expanded its offering of decorator cylinders and shafts. Starting in 2023, a new Bunting facility known as the "Manufacturing Center for Magnetic Decorator Cylinders" will be equipped to produce CONE-style tapered shafts and tapered bore cylinders. The new manufacturing center will be partially automated to provide a stable source of supply for decorator cylinders regardless of how high the market requirements are. Automated feeding of key machine centers will allow for time intensive operations to be carried out in a "lights out" environment. Reduced labor requirements will circumvent the labor shortage situation faced by most manufacturers today.

The "CONE" shaft features:

- Eccentric adjustment that allows circumferential plate adjustment on the decorator.
- Push/Pull screw set allows for lateral plate adjustment that doubles as a position locking mechanism.
- Chromed bearing surfaces for longer print shaft life with less maintenance.
- Ceramic coated print shaft under the tapered sleeve, reduces wear, friction, and heat transfer.
- Chrome coated tapered sleeve precision mounts to ceramic coated shaft end with no binding.
- Taper design matches industry standard for brand interchangeability.
- Available in solid, water cooled, and internal lube designs.

The "CONE" cylinder features:

- Aluminum outer shell with Bunting's unique spiral magnet design for maximum hold on plate ends.
- Hardened steel insert with tapered inner bore is fully interchangeable with other cylinder brands.
- Ceramic magnets with stainless steel pole pieces in a Bunting exclusive Cerface™ setting for longer life.
- Registration Pins are located per your unique specifications.
- Laser Etched Scribe line and Serial Number.
- 100% CMM inspection for maximum accuracy.
- Automated manufacturing for faster turnaround time.

NOW OFFERING AN "OLD TIMER" CYLINDER AND SHAFT ASSEMBLY!

Not necessarily a high demand item but one that fills an essential void. Many "Old Timers" in the two-piece can industry who have been around decorators at multiple locations may have run across an old Ragsdale decorator. In the late 1990's, American National Can adopted a tapered shaft/cylinder combination that was the first of its kind. After Rexam purchased ANC at the beginning of the new millennium, some of the 22 US-based and 13 Europe-based plants continued using the ANC/Rexam tapered shaft and cylinder design. Bunting believes that if a market continues to exist for a decorator cylinder then Bunting is going to offer it, only better. Better machining, better tolerances, and better deliveries … all backed with better service.

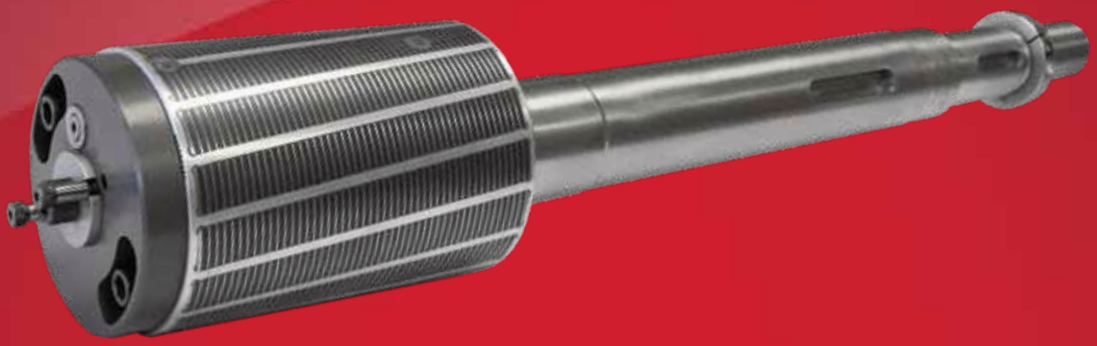
The ANC/Rexam "Megyesi" style Tapered Shaft:

- No movement on the shaft itself, which has an integrated taper means less shaft wear.
- The integrated cone and shaft maintain the accuracy of the shaft as a constant.
- Chromed cone and bearing surfaces for long-wear life.
- Available in solid, water cooled, and internal lube designs.
- Originally designed for the Ragsdale style decorator.

The ANC/Rexam "Megyesi" style Two-Piece Print Cylinder:

- The two-piece cylinder body features an aluminum outer shell with a tapered steel insert.
- The outer sleeve adjusts the cylindrical or rotational registration with eccentrics.
- For the axial alignment, the outer sleeve slides in/out on the inner sleeve.
- Locking shoulder bolts secure the eccentric adjustment.
- Tension screws hold the axial adjustment in a fixed position.
- Integrated jack screw eases removal of the cylinder from the shaft.
- 100% CMM Inspection for maximum accuracy.
- Automated manufacturing for faster turnaround.

PLATEMASTER™ PRINTING CYLINDER ASSEMBLY



The BUNTING PlateMaster is designed to allow precise repeat of registration with minimal adjustment required. The PlateMaster **(US Patents 8,915,185/9,162,439)** is a shaft and cylinder assembly with all components being interchangeable. The shaft fits directly into any Rutherford-style machine. The PlateMaster shaft features a countersunk removable shoulder bolt for easy disassembly to aid in the installation on the inker. The shaft fits into the Rutherford standard bearing housing just like the OEM shaft. A bull-nosed locating pin allows for fast alignment between the cylinder registration and the shaft keyway. Tightening the center bolt of the hub activates a highly precise double expanding mandrel mechanism, centering and locking the cylinder onto the shaft. Once locked in place, the mandrel, cylinder body, and shaft are integrated together, eliminating wear spots.

To aid in quick registration, the shaft assembly has a longitudinal adjustability that moves the mandrel and cylinder in and out on the shaft simultaneously with a single bi-directional adjustment screw. The longitudinal adjustment is approximately +/- .250".

The cylinder features a hub with a built-in rack & pinion rather than the traditional eccentric adjustment. The rack is an arcuate (curved) rack that allows the cylinder to rotate left and right circumferentially on the hub, for fine registration. The circumferential adjustment is +/- .300". All adjustments are made with a single size hex tool.

An installation tool is also available to aid in mounting cylinders from catwalks - no more reaching over obstacles or sticking hands into the inker to reach the cylinder. The installation tool has a rotating crank handle that tightens the center-bolt, locking everything in place.

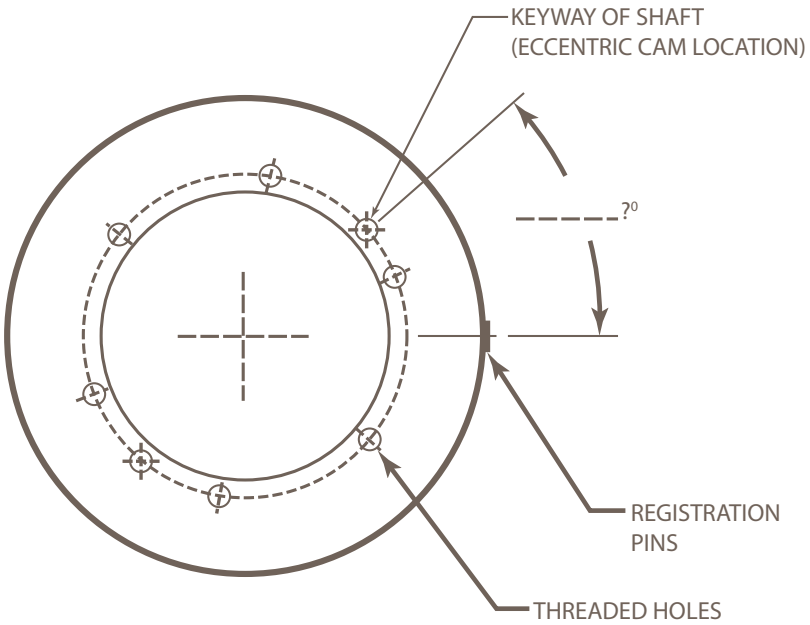
Features and Benefits of BUNTING Platemaster:

- Enables quick, precise repeat of registration with minimal adjustments required.
- Every component of this patented shaft and cylinder assembly is interchangeable.
- Easy disassembly allows for ease of installation.
- Longitudinal adjustability in shaft assembly aids in quick registration.
- Cylinder features a hub with a built-in rack and pinion rather than traditional eccentric adjustment. The curved rack allows the cylinder to rotate left and right for fine adjustment.
- All adjustments can be made using a single size hex tool. An additional installation tool is available to aid in mounting cylinders from catwalks.

HOW TO ORDER A DECORATOR CYLINDER FROM BUNTING

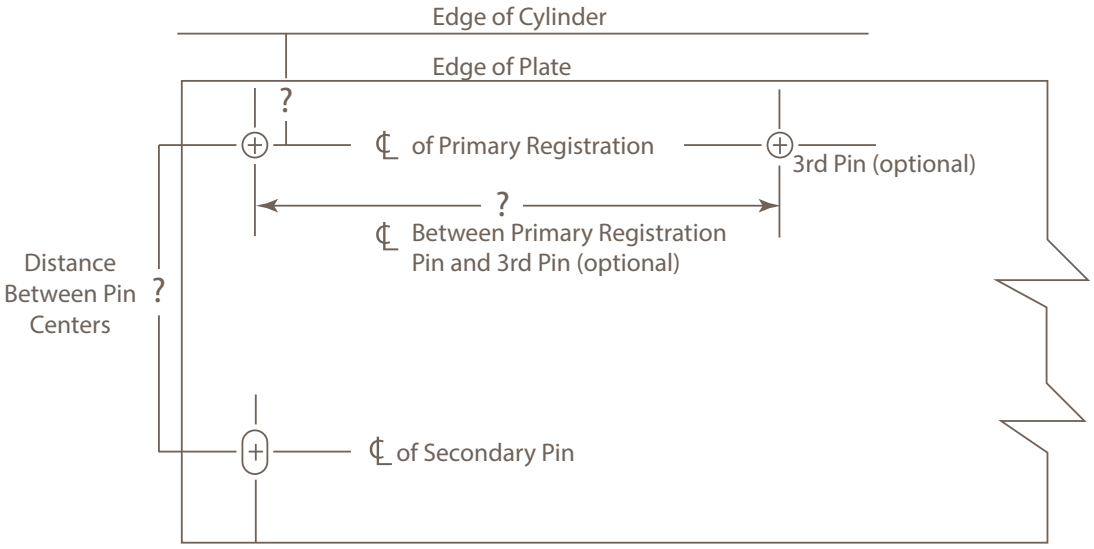
When ordering cylinders from Bunting for a Rutherford-style decorator, we will need to know the location of the registration pins. Specifically, the angular location of the round pin in relation to the keyway or eccentric adjustment.

Shown below is an example of a template that identifies the angular measurement necessary to properly



locate the primary registration pin.

The drawing below shows the measurements needed for the secondary pin locations. All measurements are taken center to center referenced from the center point of the primary pin location shown in the template above.



PLASTIC CONTAINERS

Everybody knows BUNTING in the plastic container industry. We've been supplying the industry with magnetic separation and metal detection equipment to remove tramp metal for over half a century. What many people don't know is that plastic containers are decorated either by the process of in-mold labeling or by using dry offset printing equipment. BUNTING started working with equipment OEMs who manufacture dry offset printing equipment back in the 1970s. Today, we still work closely to supply both magnetic and non-magnetic cylinders to fit and to retrofit most brands of plastics printing equipment.

BUNTING is known for creative cylinder design engineering. We know that cylinders have to undergo a great deal of wear and tear from all angles. Some parts of a cylinder take the abuse of machine torque, clamping forces, and the precision machining of the keyway. Meanwhile, other parts of the cylinder are exposed to constant cleaning with solvents, installation and removal of printing plates, and precision locating of both removable and fixed registration pins. In response to this, we build our cylinders out of stainless steel for durability and corrosion resistance. We design our magnetic circuitry using stainless steel poles to eliminate the possibility of the surface rust, which causes ghost image buildup on the back of the printing plate. We insert through-hardened high-speed steel bushings in registration pin-hole locations, to eliminate wear from the constant insertion and removal of hardened steel registration pins. By taking these design steps, our cylinders provide superior durability and performance.

PLASTIC CUP PRINTER

If you are a cup printer, you know the time it takes to change the plates out is critical for making profits. BUNTING knows that too, which is why we designed this cylinder with removable registration pins and/or a butt bar for rapid plate installation. We also offer the option of reduced force magnets near the registration pins when requested, making it easier to get the plate where you want it. BUNTING also knows you want to remove plates as quickly as possible with minimal damage, so it can be reused the next time the job comes in. So, we also designed in a set of finger notches that allow the removal of a plate without lifting up the corners and potentially damaging the plate. Built with a TIR of .0004" and dynamically balanced, BUNTING cylinders provide years of excellent cup printing.

PLASTIC CONTAINERS

PLASTIC LID PRINTER CYLINDER

When it comes to plastic containers, we best not forget the container lid. Since it's flat, it's easy to print--right? I think not. But, BUNTING Magnetic Cylinders on your lid printer can make plate changes a little easier. We can design and manufacture magnetic cylinders for most any dry offset application--even those with spline shafts.

PLASTIC PAIL PRINTER CYLINDER

It's hard to imagine printing a bucket on an 8 color dry offset printing machine. The manufacturer of those machines choses BUNTING Magnetic Cylinders to hold the plate on because of our capability, experience, quick deliveries, and affordability. You see, once you have BUNTING magnetic cylinders on your machine, you can eliminate unnecessary and wasted plate material. BUNTING magnetic cylinders secure plates in place with no need for clamping. As a result, you don't have to wrap a plate all the way around a cylinder to hold it in place.

PLASTIC BOTTLE CAP CYLINDER

Bottle caps? No problem. BUNTING magnetic cylinders are in use at locations throughout the world where bottle caps are being printed. We hold plates that are lined up and timed in perfect registration, then we make sure the plate stays put. After all--how else are you going to put 6 color printing on something that small?

CUSTOM PLASTIC CONTAINER CYLINDER

LABEL AND NARROW WEB DIE CUTTING CYLINDERS

Some people call them rolling pins, but nobody can build them as good as BUNTING. We take the time to make sure our magnetic die cutting cylinders provide years of trouble-free use. We start by focusing on what the customer needs, not how fast we can make it. We focus on things like hardened bearing races on small journal ends to keep them accurate even when using needle bearings. Our cylinders have partial or full rows of rare earth magnets on smaller repeats to keep die cutting plate ends held tightly without the need for curling the die. Our cylinders also have a unique spiral magnet configuration. All of these considerations significantly impact a cylinder's performance.

We then make sure we use the right materials. This means not just the right steel for the body, but also the right steel for our standard through-hardened bearers. Our magnets are double-inspected for flatness and dimension. We don't just use any old epoxy that will hold, either. We have custom epoxy blends created specifically for us. Our machining is unmatched in the industry as well. If you ever run your hand across the face of a BUNTING die cutting cylinder, you can feel the difference versus a competitor's. Our finish has just enough texture to create a friction bond between plate and cylinder, to make sure the die cutting plate can't slip. Most competitors cylinders have polished finishes that minimizes the friction, but can ulitmately lead to plate slippage.

To wrap it all up, we allow our magnetic cylinders to stabilize before inspection, then hand inspect every cylinder body, bearer, and journal. You see, to us it's not about how fast or cheap you can build a magnetic cylinder. To us, it's about how good of a cylinder we can build and how long it will last. That's why we've seen some die cutting cylinders we made 15-20 years ago still cutting accurately today.

SMALL 1-PIECE DIE CUTTING CYLINDERS

Why do we make a die cutting cylinder with journals from a single piece of steel? The easiest answer is that we make our larger 3-piece cylinders to be repairable, but it's cheaper to replace a small die cutting cylinder than to repair it.

We don't cut corners on our 1-piece design though. The journals and bearers are heat-treated for durability. You can order the cylinder with a straight or spiral magnet configuration. Additionally, we can provide a variety of rare earth versus ceramic magnet configurations to give you the holding power you need-without needing to bend your die cutting plate up to get it off the cylinder.

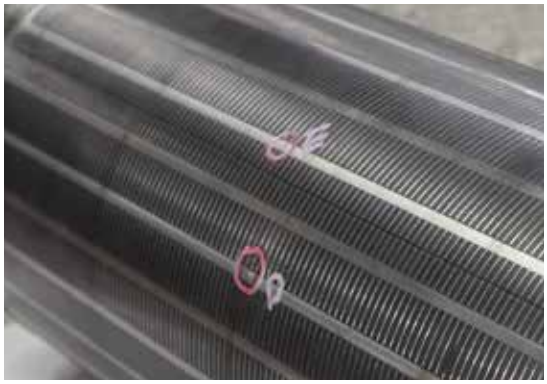
BUNTING STANDARD DIE CUTTING CYLINDERS

Our standard die cutting cylinder is hands down the finest cylinder available…anywhere! BUNTING was the first to achieve a TIR runout of 0.000080" (2 microns), setting a new industry standard. Why that tight of accuracy you might ask? When you die cut BOPP labels on a 12 micron PET filmic liner at very high speed, you simply need the most accurate die cutting cylinder and anvil available. That's where a BUNTING cylinder shines. We make cylinders that machine OEMs use when designing new equipment. Plus we can provide extremely durable anvil cylinders that match those tolerances.

BUNTING CYLINDER REPAIR AND PLANT AUDITS PROGRAM

Have you ever had a web break and wrap up in your die cutting unit, destroying the die and damaging the magnetic cylinder? Of course you have - it happens to everyone sooner or later. We know bad things happen and we are here to help when they do. Damages we can often repair include:

- Repairing bent or worn journals
- Replacing broken magnets
- Repairing damaged web between the magnets
- Replacing worn bearers
- Regrinding body and bearers to tolerance



In the event that a cylinder will cost more to repair than a new cylinder will cost, we will advise you of the best course of action to take. We specialize in repairing magnetic cylinders in all sizes and often can repair cylinders manufactured by our competitors.

BUNTING is the expert at building cylinders … and rebuilding them! We offer inspection of all brands of magnetic cylinders and in many cases, are able to repair cylinder defects. From regrinding or replacing damaged bearers to restoration of bent, worn or damaged journals, BUNTING can repair or replace damaged magnets. We also excel at dust grinding the body and bearers to improve tolerances.

Some customers swear that our rebuilt cylinders perform as good as brand new, often at less than half the cost of replacement.

If you have a large quantity of cylinders and regularly have die cutting problems, you may benefit from a BUNTING Cylinder Audit. We travel to your location with all the tools necessary to perform manufacturer grade inspection of all your magnetic cylinders and anvil cylinders. We provide a written document of our findings for each cylinder we inspect with recommendations for repairs and replacements as needed. The audit document is your guide as to which cylinders are capable of continuing to perform admirably, which cylinders can do the less critical jobs, and which cylinders are nothing but a headache and trouble with any job.

We also advise your employees on proper storage, handling, and cleaning of magnetic cylinders.

Call us today for a quote.

Note: Repair cylinders require a BUNTING issued RMA prior to shipping. Contact us if you have cylinders you would like us to inspect for repair prior to shipping.

FOLDING CARTON DIE CUTTING AND CREASING CYLINDERS

Only people who work at companies that make folding cartons, think about how a folding carton is made. Designing the folding carton is certainly challenging. Designers have to consider how big the carton needs to be, what the shape of it has to be to fit the product going inside, and where the scores and die cuts need to be located so it folds up neatly into a box. Once designed, it has to be made. That's where BUNTING comes in. We manufacture magnetic cylinders for use in matched upper and lower cylinder double die applications. We also manufacture matched magnetic cylinders and anvil cylinders for upper and lower single die applications.

What sets BUNTING apart in the manufacture of folding carton, die cutting and creasing cylinders is our ability to make the big stuff. Our machining capability allows us to manufacture and finish grind cylinders with journals that have an overall length of 60" and a repeat (or circumference) of up to 55". Few folding carton requirements call for larger cylinders. However, if they do, BUNTING has the sourcing available to complete much larger cylinder lengths and repeats.

BUNTING UPPER AND LOWER DIE CUTTING CYLINDER SETS

Made to the same standards as our regular die cutting cylinders, the BUNTING Folding Carton Cylinder Set can be designed to fit most brands of web-fed converting machinery. We work closely with OEMs such as Bobst, Komori-Chambon, and Canadian Primoflex Systems to provide new cylinder sets for new machines.

BUNTING has a unique method of adjusting the magnetic strength of our die cutting cylinders, so you get a cylinder that will securely hold your die plate at high speeds, while also making it possible to remove the die without ruining it. Our standard ceramic magnetic circuitry is ideal in most instances. Sometimes though, customers want a little more holding power to run maximum press speeds. Only BUNTING offers full or partial rare earth magnetic circuitry. By using our magnetic expertise we can vary our pole thickness, change pole material, and even interchange rows of magnets to adjust the magnetic field. Nobody in the industry knows more about magnets than BUNTING!

BUNTING also makes cylinders to retrofit your existing or custom-built converting equipment.

CUSTOM MAGNETIC CYLINDERS

Occasionally, specialty die cutting equipment OEM's will contact BUNTING for a custom designed die cutting cylinder set. Applications range from specialty cylinders for modules that go inline with inkjet printers to upper and lower cylinder sets for offline rotary die cutting of sheet-fed offset print jobs. These custom die cutting and anvil cylinders all have unique capabilities that require special machining, such as gun drilling, machining in pockets, and even hollow cores for weight reduction. BUNTING is unique in that we specialize in designing cylinders to meet the needs of the customer, regardless of the quantity required.

CYLINDER

ANVIL

SPECIALTY MAGNETIC PRINTING CYLINDERS

When it comes to magnetic printing cylinders, nobody else can offer the wide variations of sizes, designs, and features that BUNTING can. Our range extends from massive 144" wide jumbo flexo print cylinders for corrugated FFG's printing corrugated sheets, to small 2" wide dry offset magnetic cylinders for printing on egg cartons.

Every printing cylinder manufactured by BUNTING is a custom job. Every custom job starts with our inside sales team reviewing everything from dimensions, to material requirements, to packaging and shipping. Our design engineers then create a technical drawing with dimensions and tolerances for your specific cylinder requirements. Once the job is approved, our manufacturing engineers, job schedulers and purchasing personnel process the job to get it to our manufacturing floor quickly and accurately.

FFG CORRUGATED PRINTING CYLINDERS

BUNTING developed the first magnetic cylinder for corrugated printing on inline flexo folder gluers (FFGs) back in the 1970s working with RR Donnelley. Since then, Bunting has made more magnetic cylinders for FFGs than any other company. Today, we are the last remaining manufacturer with the scope of product knowledge required to make these behemoth cylinders on a regular base.

Ranging in size from 144" in length and 24" in diameter down to approximately 60" in length and 8" in diameter, the FFG cylinder has recently made dramatic returns to the marketplace. The transition from one-color jobs to 6-color jobs reduced demand for the magnetic FFG cylinder due to difficulty in trying to register multiple magnetic cylinders. Recent returns to one-color jobs for online order shipping (think Amazon shipping boxes) has brought new life to the use of the magnetic cylinder.

SPECIALTY PRINTING AND COATING CYLINDERS

EGG CARTON PRINTING

One of the smallest cylinders that BUNTING produces is used for a very common application. Egg cartons are labeled a variety of ways including stamping, adhesive labels, inkjet, and dry offset for the higher volume label requirements.

BUNTING works closely with OEMs to fulfill their exact magnetic cylinder requirements, no matter how large or small their size or quantity requirements. BUNTING has thousands of magnetic cylinders in use today around the world. If we can help print packaging that ranges from large corrugated boxes to egg cartons, we can help you with your printing or converting job.

SPLIT SHELL PRINTING

The BUNTING split shell cylinder has been around for many years. Designed to be secured around a roller shaft, the split shell can add versatility to your litho press. Often used for very unique custom jobs and spot coatings, the cylinders simply screw together on the seams. This is just another example of how diversified BUNTING is when it comes to magnetic cylinders.

AQUEOUS COATING / FLOOD AND SPOT VARNISH / UV COATING / ADHESIVE CYLINDERS

If there is one thing BUNTING knows, it's that every printing application is unique. Aqueous coating cylinders require ceramic magnets with stainless steel pole pieces. Otherwise, the cylinder could be prone to rust. Varnish cylinders get the highest use since varnishes are the least expensive of the coatings. However, since varnish is a petroleum–based product, special epoxy may be required to stand up to aggressive cleaning chemicals. UV coating cylinders are typically used offline and can be subjected to more aggressive cleaning solvents as well. Adhesive cylinders for applying cold-adhesive or heated glues, need to be designed specifically for their application. Heated adhesive cylinders will need special magnets that can withstand the heat exposure, long-term. Cold adhesive cylinders need to have strong magnets to hold the plate securely to the cylinder.

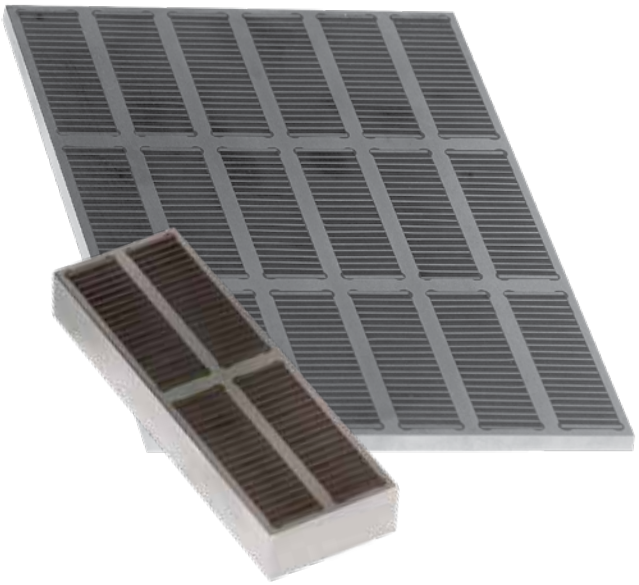
So, if you are in need of a magnetic coating or adhesive cylinder, talk to BUNTING. We can save you years of competitive cylinder problems down the road.

MAGNETIC FLAT BASES

ALUMINUM FLAT BASES FOR PLATEN AND FLATBED PRINTING

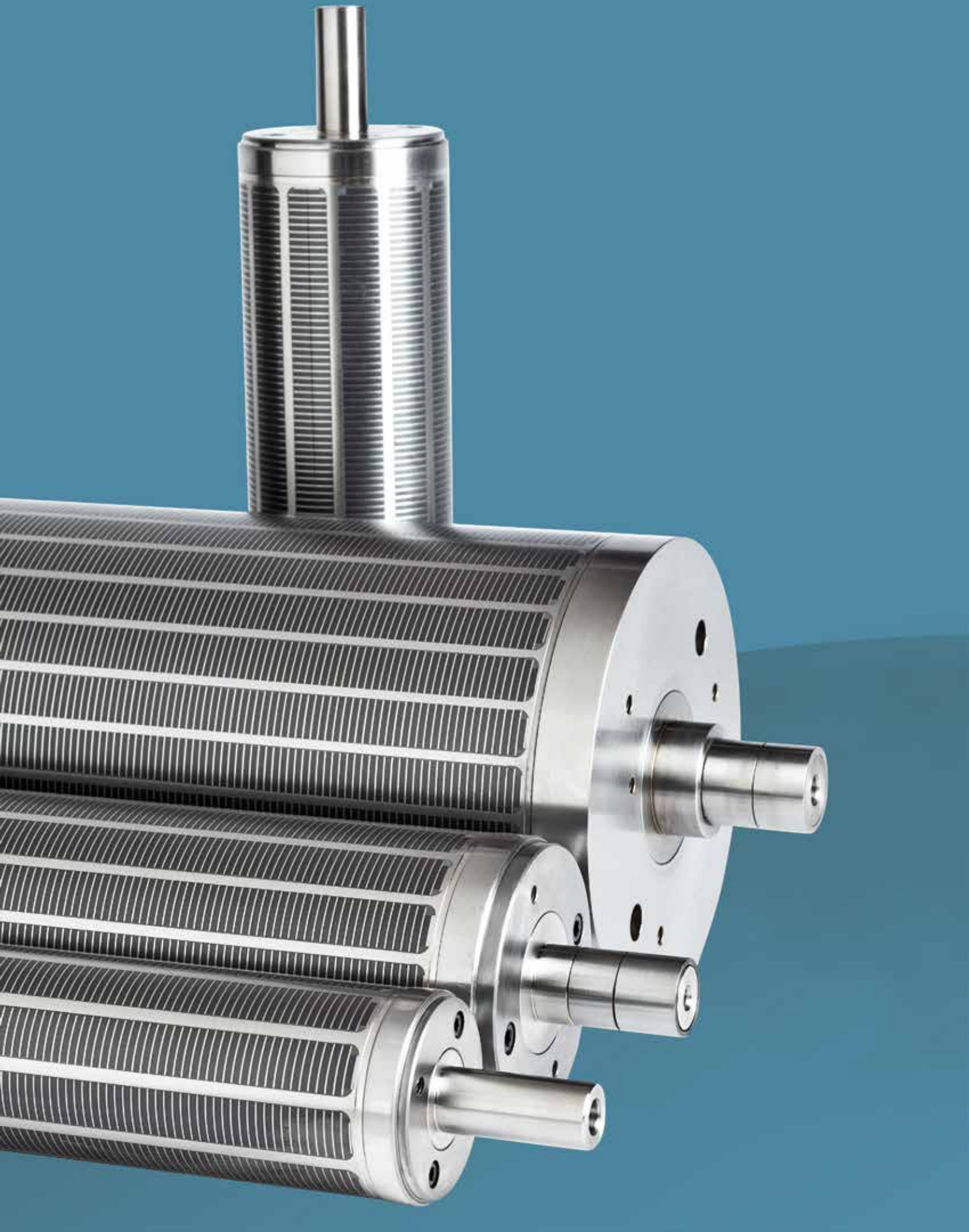
You can always rely on BUNTING to provide a “truly flat” flat aluminum or steel base for your platen press. Whether you have a New Era, Chandler & Price, Heidelberg, Brandjen & Kluge, Miehle, or some other brand, we can fit your platen needs. If you have never used a magnetic flat base on your platen or flatbed press, you are missing out on fast, positive mounting and registration. Simple metal backed polymer plates eliminate the need for adhesives and tapes. Imagine the convenience of not having to clean the plate area after every job.

We make many standard sizes and can make almost any custom size required. If you want to use just one magnetic flat base in the chase for one job but also want the option of multiple bases to fill the entire chase, we offer quantity discounts for multiple units purchased all at one time.



STEEL FLAT BASES FOR PLATEN DIE CUTTING AND HOT STAMPING

Made from steel and built to be durable, our steel flat bases take the abuse. Use flexible dies with ejection foam to turn your platen press into a die cutting money maker. Or, order our steel flat base designed to accept your heating element, then heat it up and use your metal-back polymer plate for hot stamping up to 450° F (235° C). If you need more heat, BUNTING can custom build you an ultra-high temperature flat base using steel with high temperature samarium cobalt magnets and a custom high temperature filler for hot foiling at temperatures above 450° F (235° C).



BUNTING™

Pure success: What the Bunting name means to you and your business.

Bunting is proud to provide innovative, custom-designed solutions for the printing industry, as well as many other industries such as food and pharmaceuticals, plastics, and recycling. Our equipment is durable, dependable, and driven by the needs of our customers and the modern challenges they face. Bunting has been a family –owned, family-led company since 1959. Sixty years later, we have made massive strides in developing new technology to meet the unique needs of the 21st century, while remaining committed to delivering the highest quality products accompanied by excellent customer service.

We invite you to experience our customer service and products for yourself. Contact your Bunting representative today for more information or to obtain a specific quote.

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