

## Ogura micro clutch production goes 365 24/7

A few years ago, when many micro clutch manufacturers started moving their operations out of the US and Japan, the micro clutch division of Ogura thought they would lose business due to the low labor rate in other countries. However, the opposite has happened. Ogura micro clutch production now exceeds 700,000 clutches a month whereas a few years ago it was at 400,000 clutches per month. This has happened because of two reasons:

1. Ogura has invested heavily in automation, which has lowered production costs.

2. Many of the competitors' clutches that are made outside the US and Japan achieve lower cost through a highly manual labor manufacturing operation. This manual operation is more apt to have quality difficulties.

With Ogura's highly automated manufacturing, component parts are fed into parts sorters and then automatically transferred to the assembly line. As the clutch goes through its assembly process, it is checked for flatness, run out, continuity and pull in ability, and then



Ogura micro clutch assembly line

finally the entire clutch is tested for pull in before it leaves the assembly line. If any part does not meet its predetermined specification, it is rejected at that point during the assembly process. This means that no out-of-spec component parts can be put into the clutch assembly and more importantly it means that no clutches that are out of specification leave the factory.

With the increase in demand for Ogura's high quality, low cost clutches, production has recently added a third manufacturing

micro clutch production line. All lines have recently been redesigned to go from two shifts to a three-shift operation. The third shift will be overnight and the machinery will be required to run up to eight hours in an unmanned condition. Additional part hoppers and sorters have been added to allow the machines to continuously run during this period.

Although the inexpensive labor rate outside the US and Japan may look attractive for the short term, the best long-term solution to keep cost down is the elimination of labor. The investment that Ogura micro clutch division has made in automation today has allowed them to be competitive in today's market and will allow them to be competitive in the market 5 years from now.



Multiple bobbin winding machine



Subcomponent part storage and feeder



## OIC EMPLOYEE PROFILE

### Jim Padula, Project Coordinator

**H**i, my name is Jim Padula. Some of you may recall that I worked for Kanematsu from 1986 to 1994 as sales manager for geared products; however, I also was involved in sales of the Ogura product line and in power tool drives and bearing components. I recently accepted an early retirement package from Emerson Power Transmission Corp. where I was the gearing and drive specialist covering the southeast region out of Atlanta. Coincidentally, that was my second tour for Emerson, having worked for Browning Mfg. Div. during the '70's as north-east regional manager. (I guess you could call me 'Rerun' like the 'Peanuts' character.)

Although my degree is in marketing, my background has been in field sales, primarily material handling and the power transmission field for many, many, many... years. I won't say how old I am but at my age Metamucil is considered a controlled substance. However, while accepting Emerson's offer, I wasn't ready to retire yet. Hence my return to Ogura where my function as a project coordinator will be to handle the many incoming inquiries we receive daily looking for that pearl among the many grains of sand. In addition, I hope to expedite the processing of warranty and service claims. Stay tuned, as my position is an ongoing work in progress and definition. Recently, some have asked when do I plan to retire and my response is "when I lose my sense of humor".

I still have connections in Atlanta as my two daughters and their families (including my five grandchildren) live there. My wife will shortly be joining me in beautiful, scenic New Joisey. Incidentally, if any of the western area reps (U.S. / Canadian Rockies, Cascade range, the Wasatch or the Grand Tetons) need expert technical sales assistance during the winter months, note that I am available on Fridays. And, if you see me carrying what appears to be a ski bag, it is really an extra long brief case... really!

I look forward to renewing prior business acquaintances and meeting new ones.



Jim Padula  
Project Coordinator

## Web Site improvements



New home page link to Ogura Japan.

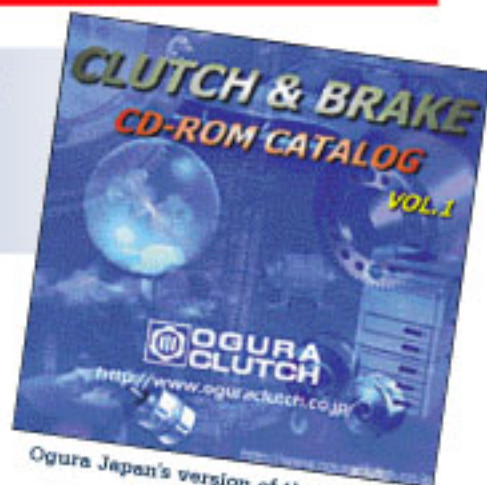


**T**he Ogura web site has had two enhancements to it since the last quarter. The first is a **Search Site** function. This bar is shown on the home page. A visitor to the Ogura site simply clicks on the Search Site function and types in the key word or phrase that he is looking for. A listing of all related pages then comes up so they can get to the information they need faster.

The second enhancement that was added is a link to Ogura Japan's web site. This allows visitors to see some of the other products that Ogura manufactures for Asia and also allows visitors to keep up on the latest developments at Ogura Japan.

## Ogura Japan CD-rom released

**O**gura Japan has released a new CD-ROM giving technical information on industrial products sold throughout Asia. The new CD-ROM also includes the latest videos from Ogura showing all of Ogura's manufacturing plants worldwide. If you would prefer to get technical or video information in Japanese, please contact your local sales person or visit the Ogura Japan web site through the link on **HYPERLINK** "http://www.ogura-clutch.com".





## APPLICATION STORY

# Reversing Drives for double sided copy machine

**I**t is a relatively simple process to make a single sided copy. The paper is passed over a heated coil, causing toner to fuse to the surface of the paper. A double-sided copy, however, is much more complex, requiring a mechanism to feed the sheet of paper back into a section of the machine where a set of guide rolls flip the paper over, then sending it back to the coil to print on the opposite surface. To develop this process, Ogura engineering has worked with design and product engineers at premier copier companies throughout the world to develop a reversing drive assembly which allows for a quick, dependable, and cost effective way to reverse the direction that paper travels in the copy machine. This is accomplished by using two clutches, which are mounted on parallel shafts that are then assembled into a housing.

### The Assembly

The clutches are mounted on separate shafts and face opposing directions.

The input clutch has a timing pulley on bearings attached to its armature, and a spur gear mounted solidly on the shaft towards the clutch's field side.

The output clutch has a spur gear on bearings, which is engaged with the solid mounted

spur gear on the input shaft, attached to its armature. A timing pulley connected through a timing belt to the input clutch's timing pulley is solidly mounted on the shaft, towards the field side of the clutch.

Regardless of the input shaft's rotation, there is no rotation of the output shaft if power is not applied to either clutch.

The entire assembly is enclosed in a mountable housing with an input and output timing pulley solidly mounted on the shafts extending beyond the housing.

The shafts are held within the housing through sets of ball bearings.

### How It Works

As the input rotates and power is applied to the input clutch, the timing pulley is engaged, causing the timing pulley on the output shaft to rotate through the timing belt. This allows the output shaft to rotate in the same direction as the input.

To reverse the direction of the output shaft, power is removed from the input clutch and then applied to the output clutch. The spur gear on the output clutch is engaged, and is rotated by the accompanying spur gear solidly mounted on the

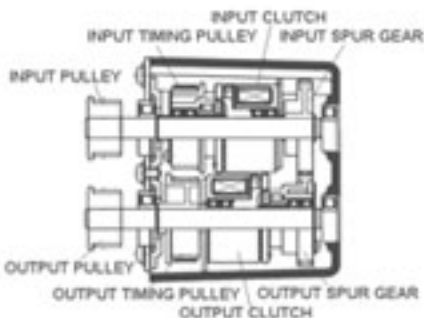


Copy machine with a reversing drive.

input shaft. This allows the output shaft to rotate in the opposite direction of the input.

This is an example of the type of value-added sub assemblies that Ogura Industrial can produce to lower an OEM's assembly costs. But more importantly, by controlling all tolerances of this sub-assembly, reliability and performance is guaranteed.

Besides using this type of reversing drive to change the direction of paper flow, it can also be used as a traversing drive for a coil-winding machine or as a positioning device to help assemble little wooden chips inside glass bottles.



Cross sectional view of clutch assembly.



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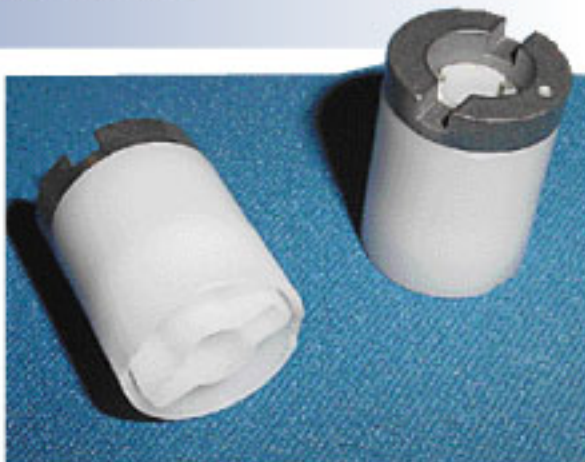
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E-mail: [ogura.nj@ogura-clutch.com](mailto:ogura.nj@ogura-clutch.com)Web Site: [www.ogura-clutch.com](http://www.ogura-clutch.com)*Happy Holidays from the staff of Ogura Industrial***NEW PRODUCT RELEASE****Mechanical Torque Limiter  
for paper feeds**

Because the office automation equipment market requires both torque control and low cost, Ogura has developed a series of mechanical slip clutches. These slip clutches incorporate a powder metal input and plastic output hub in combination with a metal wrap spring. The pressure of the wrap spring applies a given torque load to the hub. If a paper jam occurs, the clutch slips, protecting the drive gears in the piece of office automation equipment. The amount of spring wrap and surface area determines the torque on each of the models.

Because these are used on copy machines and printers where the cost is extremely critical, these units are highly tooled for high volume production.



Mechanical torque limiter clutches

Input and output hubs can be adapted to different customers' requirements. However, since these components are tooled for those customers, volume needs to be high enough to offset the tooling cost.

These slip clutches, along with Ogura's electromagnetic on/off clutches, allow Ogura to provide an entire clutch package to office equipment manufacturers.

**Ogura Clutch  
Motorsports 2001**

Ogura Clutch Company in Japan has the opportunity to help sponsor a number of racecars in Japan. One of the more popular circuits is the GT circuit in which

Ogura helps to sponsor six different racing teams. A number of these teams have done fairly well in 2001. If you would like to have more up to date information on either Ogura racing products or how the sponsored race teams are doing, please refer to the ORC

portion of Ogura Japan at hyperlink "<http://www.oguraclutch.co.jp>".



Ogura Japan sponsors racecars

**OGURA IN THE NEWS****New Ad Released**

The following ad was released for Machine Design and Design News. It highlights Ogura's magnetic particle clutches and brakes and some of the advantages that these brakes can offer customers.

Magnetic Particle  
Clutch/Brakes ad