



Welcome to

The aim of this newsletter is to provide new product information as well as interesting developments within the global bearing industry. We also hope to provide useful insight relative to usage of bearing types that have been around for some time.

Action Bearings has been a service provider to Australian industry for more than 25 years. Over that journey there has been a noticeable shift in the demographics of Global bearing manufacturing zones.

Traditional Western European and American Manufacturers are under challenge from "Low Cost Region" product output and we are seeing a race to set up production facilities in China and Eastern Europe.

Action Bearings continues to strive for a quality service output to our customer base and in spite of evolutionary changes within the industry we continue to supply only quality product brand lines.

We hope that this Quarterly Newsletter is proof of our commitment to keep you informed about changes in manufacturing sources, materials, engineering developments and field success stories that might assist you to develop new applications within your workplace.



## MayTec in Action

MayTec Australia Pty Ltd, the aluminium profile specialist, has appointed Action Bearings P/L as its sole Victorian Distributor. The Maytec product range is made in Germany and stocked in bulk for Australian distribution from a head office base in Sydney.

As a global leader in the field of Aluminium Extrusions the Maytec line offers excellent quality surface finish across a broad range of light and heavy duty catalogue sizes.

The product includes the most versatile connection system available within any comparable profile range. "The Universal Connector" offers high load joint strength combined with an ease of assembly not available in any other extrusion range. The profile range is complemented by ever increasing connector styles and accessories enabling more exotic building options.

Action Bearings will provide Maytec with a Victorian stock and support base capable of design, modification and product build.

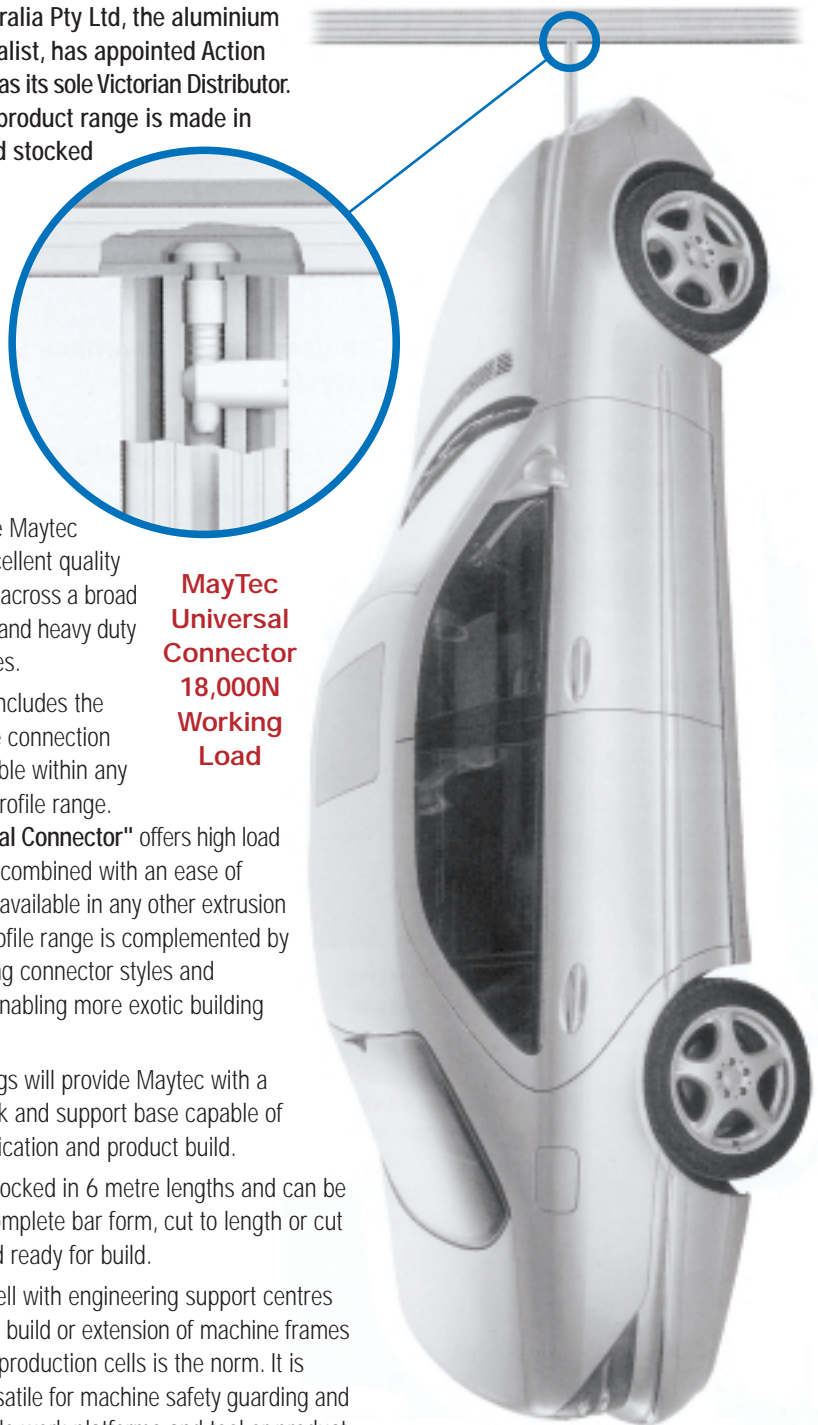
Profiles are stocked in 6 metre lengths and can be supplied in complete bar form, cut to length or cut and machined ready for build.

Maytec fits well with engineering support centres where design, build or extension of machine frames or workplace production cells is the norm. It is extremely versatile for machine safety guarding and static or mobile work platforms and tool or product transition tables.

Shop display and office fit-outs as well as other special purpose build combinations are seeing more aluminium extrusion usage than ever before and the combination of Maytec Products with Action service

and support hopes to see more of the Victorian demand.

Please call 03 9587 7811 to obtain a copy of the latest catalogue release.



**MayTec  
Universal  
Connector  
18,000N  
Working  
Load**

## Interesting Integral Shaft Bearings

see back page . . .



# The China Syndrome

It's no secret that increased demand from the People's Republic for Australian Iron Ore and other minerals is being generated by growth in export demand for low cost manufactured goods from China. Steel production in China has grown at an annual rate exceeding 20% while "World Demand Forecasts" predict average global growth rates of just 7% year on year. Official Chinese sources claim that their increased steel output will not harm other international markets because it is feeding domestic demand, however there is ample evidence that finished steel products, formerly made in other countries but now manufactured in China, are having huge economic and industrial impacts on a global scale.

A contributing factor to the growth in Chinese steel demand is the ongoing development of its domestic bearing manufacturing industry. Bearing exports from China are having an effect on all continents due to the extremely low price base they can generate in comparison to traditional production countries. Chinese industry sources are currently forecasting bearing exports to the value of US\$1 Billion by the year 2005. The reaction from other global manufacturers in response to low priced Chinese made bearing products flooding their markets has been consistent. They have initially queried the quality aspect of the products, they have then sought intermediate anti-dumping protection under government trade laws and having achieved that have then set about arranging manufacturing partnerships or built their own factories within mainland China. In effect they have all recognised the potential of the growing Chinese industrial might and realise that it cannot be constrained as it develops ominous export potential.

The key factor in successful manufacture of any steel bearing product where rotating rolling elements carry loads around finely machined surfaces is the purity of the raw material. For many years traditional bearing manufacturers have worked in conjunction with their steel suppliers to ensure improvements aimed at delivering a raw product free of in-process contaminant inclusions. Only the purest steels are acceptable to traditional bearing manufacturers. Steel purity minimises the potential for sub-surface structural failures during manufacturing as well as in eventual bearing applications. Chinese steel manufacturers have been working hard to emulate the processes capable of pro-

viding product purity to globally acceptable standards so that domestic customers can eliminate raw material as an issue when being compared to recognised bearing products.

Another major aspect of successful bearing manufacture is the ability to machine and heat treat steel materials. Most raw material machining processes of world recognised bearing companies are carried out on high speed, high accuracy and highly automated work centres. Successful bearing manufacturing requires a necessity for accurate gauging of in-process and post-process components and in some cases investigation of sub surface metallurgy. This is done to ensure the supplier guaranteed working life of assembled bearing products. Leading European, American and Japanese bearing companies can trace each component batch through all production stages. High end metrology, the ability to measure and test finished machined products, is seen as a critical foundation of all bearing production. While Chinese bearing manufacturers are now able to satisfy scrutiny of the purity of the raw material steels they are using today, they don't seem to have achieved similar recognition from their global industry peers in areas such as precision machining, raceway surface honing, heat treatment and general quality control standards.

Whether fact or fiction, Chinese bearing products are plagued with stories about noisy running, faulty seals and shields which drop out in service, ill fitting grub screws or locking collars and a generally promoted perspective that they are suitable only for conveyor, agricultural or other semi precision applications. Some of this misplaced innuendo stems from Chinese pump and motor importers of many years ago who would change out all bearings and seals to more well known brands before selling the products into their respective domestic markets. Today's leading Chinese bearing manufacturers consider that they are now capable of providing electric motor grade noise tested products for those massive volume demand areas of electric motors and pumps.

The world's largest bearing manufacturers with histories linked to Europe, Japan and America have been moving production into Low Cost Regions such as Malaysia, Thailand, Korea and Eastern European countries for the past 20 years. Some bearing buyers have been under the impression that because they were purchasing a product in well known brand names and packaging livery synonymous with traditional German, Swedish or Japanese companies that the products were being made in those countries. A closer look at product packaging will always show the country of origin and in the recent past, many people

would have had their expectations jolted by investigation of the true "Country of Origin".

If you haven't been offered the option of buying a Chinese made bearing then rest assured, it won't be too long before it comes your way. In almost every case the product will offer good opportunity to lower your cost base. Chinese bearings are available across a broad range of sizes and types in brand names unknown in this market. Other than information derived from individual web sites, there is no unilateral knowledge base about the brand names on offer, the respective manufacturers or their individual quality standards. No doubt this knowledge base will be improved in time and with globally recognised manufacturers now producing in China, quality standards will be set against international benchmarks. The Chinese government will presumably set in train an official licensing program to prevent sub-standard product effecting the country's long term export potential. This will obviously be a program, which will take time and means that buyers of Chinese bearings are currently reliant on the guarantees provided by individual suppliers. Product now made in China by internationally recognised companies or sizes that have obtained a globally recognised performance history in specific automotive or industrial applications should be considered bulletproof as far as quality is concerned. Product not falling within these categories needs then to be judged by comparative performance against globally recognised brand names in similar applications.

We hope that this perspective offers an insight into the development of a well known product type within a little known supply base which will eventually become a major import source for Australia. A precedent for development of such a supply source away from traditional European and American manufacturers has already been set within the Australian Bearing Industry when previously unknown Japanese products began to appear in our markets in the early 1960's. China has set a course and is capable of dominating global markets as a source for volume manufactured steel products such as bearings. It is now a matter of record that nearly every major bearing manufacturer has entered partnership production or established stand alone factories in the People's Republic of China. The amount of time it will take the industry there to establish consistency in quality standards and global brand line recognition is now in their hands.

*If we can help with any further questions on Chinese made product or further information on supply sources please feel free to contact our office.*

# Plastic Bearings

now provide new usage options

A broader range of industrial applications means that bearings users need continuous product development to provide specific solutions.

An example of this development is a range of standard and special bearing sizes now available from Schmeing (Germany) using Acetal Bearing Raceways and a choice of glass, stainless or nylon balls.

Naturally these bearings do not have the load / speed capacities of their like sized steel bearing products, however they do provide special features which more traditional products cannot emulate.

These new plastic bearings have been successfully applied in the Food, Chemical and Printing industries, where light loads and non toxic in-solution performance is required.

## SIMIG



## Plastic Ball Bearings

*The advantages are obvious*

- Chemical stability
- Corrosion resistance
- Lubrication and maintenance-free
- Lightweight and low friction resistance
- Temperature resistance up to 250°C

## Problem Solver & Cost Reducer

Can be specially designed at low cost for specific applications.

**Advantages:** Design simplicity keeps cost down.

### Races of

Polyacetal,  
Polypropylene,  
Polyethylene,  
PETP, TEFLON(r),  
PEEK

### Balls of

Glass, AISI 420,  
AISI 304, AISI 316,  
Borosilicateglass,  
Ceramic A1203,  
Plastics

Cages of Nylon, Polypropylene,  
TEFLON(r), PEEK




**Flanged plastic ball bearings** are extremely smooth running when used in conveyor roller applications.

**Advantages:** Because plastic is used in the construction of the inner and outer bearing races, tight tolerance are not required. The flanged plastic bearings easily push into rollers with a light interference vs. the normal tolerance fit associated with metal bearings used in similar applications.

**Plastic ball bearings made of PEEK** with glass balls can be used in high temperature applications such as drying plants or furnaces.

**Advantages:** The PEEK material is capable of temperatures as high as 250C without lubrication. Even in difficult conditions such as extreme humidity or steam, these bearings are suitable for continuous high temperature use.

## Workstation & Machine Frame Designs

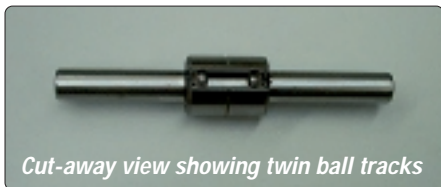
 MayTec



# The Versatility of Integral Shaft Bearings

The integral shaft, or more commonly designated "water pump spindle bearing", has enjoyed a popular resurrection that has seen it applied as a working solution in a host of new mechanical applications.

The name "Integral Shaft Bearing" was derived as a result of two external ball tracks being machined into the inner wall of a tubular housing with a matching set of internal ball tracks being cut into a solid shaft. When tubular housings and solid shafts were matched and assembled with balls, separators and seals into a single component, the end product emulated two housing mounted radial ball bearings being pressed onto a common drive shaft in a very modular form. In this case however the solid drive shaft was an integral part of the bearing.



*Cut-away view showing twin ball tracks*

Originally designed as a combined pulley shaft and pump impeller support bearing for use in automotive engine cooling systems, it was made in 3 popular tube sizes or barrel dimensions ( ) and 3 popular shaft sizes ( ). A wide combination of optional shaft diameters and lengths was manufactured across the 3 main barrel diameters. Distributors needed to stock in excess of 500 different sizes just to cover the most popular auto applications as all shafts were hardened and expensive machining equipment was needed to make stocking easier by modifying shaft diameters or lengths.



*One end shortened opposite end threaded mount*



New technology in the form of the diecast automotive water pump marked the end of the replacement spares demand for this bearing style. Automotive replacement shifted to complete water pumps, as most of the diecast aluminium bodies were irreparable. A small number of bearing manufacturers re-designed 2 of the original barrel diameters combining them with unhardened, over-length shafts to meet the small ongoing replacement demand. This could now be done by modification of the new, "easy to work" unhardened shafts.

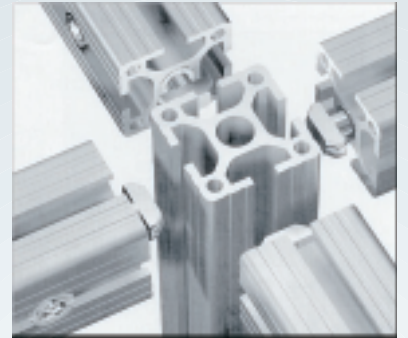


Easily modified integral shafts have opened up a range of new service options for these bearings. Application driven demand has seen some very creative use of this product line away from its origins in automotive pumps. It has been applied as a modular direct drive shaft fitted with couplings and timing belts, slotted or keyed shaft ends, machined flats and threaded ends have also provided answers to modular drive-line problems. Opal miners have used the bearing in quantities as a sealed axle set complete with fixed wheels on each shaft for sub to surface tracking elevators, while automated system manufacturers have cleverly adapted the bearing as a non-drive end tension pulley support roller or an optional drive-end shaft extension unit.

The integral shaft bearing is a unique component that might one day offer you an easy solution to what could have been an otherwise tedious application problem.



## MayTec Connects with Industry



MayTec Australia, the aluminium profile specialist, has introduced a special connector that will allow slotted profile to be joined at any angle. There is no special machining required to use the anchor. Once the aluminium is cut at the required angle, the connector can be fitted using the same technique used on a ninety degree join. The anchor itself has a hinged head, unique in the industry, which provides an extremely strong, stable join.

Connectors are a vital part of any modular system. The versatility of the Maytech joining system sets it apart from any other comparable product. This allows the extrusion to be used to best advantage while saving time and money in assembly time. Maytech Sales Manager Ian Carlisle says, "Calculating the cost of a project using a simple price per metre of profile is fraught with danger. The overall cost should take on board not only the material used but also consider the time taken to align and assemble any project."

MayTec Distributors will offer a quotation service that enables customers to see where any unseen costs might be so that they can make a choice of self assembly for the sake of the budgetary constraints of any project.

**Action Bearings can provide full 3D design services for any project.**