

The Omega Wheel is a patented urethane wheel developed for caster applications. This polyurethane wheel achieves its load bearing and enhanced impact absorbing capabilities through a patented web/spoke design. When the wheel encounters an obstacle, it flexes, cushioning the load, and rebounds to its original shape. It retains bond at high speeds and resists picking up metal chips.



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The Omega tread resists chunking and tearing, and reduces noise more than standard polyurethane wheels. It eliminates the need for spring loaded casters. This wheel has been tested and engineered for 5 years. This design has been optimized to carry high loads at high speeds. Omega wheels are built to industry standards and can be retrofitted to any caster rig using the same size wheels

## What Makes the Omega Wheel Different?

The Omega Wheel is different from other wheels due to the fact that it achieves its enhanced impact absorbing capabilities through a web/spoke structure, which is designed to buckle at deflections above a pre-described operating deflection. The web and spokes buckle in a localized area of the wheel. Due to the supreme elasticity of the specially formulated polyurethane, the web and spokes return to their original configuration and continue to carry load. Because of this designed-in critical deflection limit, the structure is not capable of prolonged operation at loads above its rated load. However, the Omega is capable of random, complete localized deflections to the cast core without permanent damage. Literally speaking, this means that the Omega Wheel can withstand loads above its capacity for short periods of time, whether the wheel is moving or not, without permanent damage to the tread.

## Features

**Wheel Bearing:** Choice of straight roller bearing, tapered or ball bearings

**Temperature Range:** -40°F to 180°F

**Hardness:** 95 Shore A Durometer

## Advantages of Omega Wheels

Here are some of the benefits and advantages the Omega Wheel can offer over standard polyurethane wheel designs:

### 1. Retains Bond at High Speed

Under load the Omega Wheel was tested at 17.5 mph for a period of twenty minutes. The wheel showed no signs of damage after that period. A standard polyurethane wheel was tested using the same criteria and the polyurethane delaminated after five minutes resulting in complete failure. Bond failure is the number one cause of polyurethane wheel failure. The Omega Wheel increases the service life of equipment using polyurethane wheels and keeps your equipment productive.

### 2. Reduces Noise

The Omega Wheel flexes when it encounters obstacles and absorbs the impact that generally is transferred to the equipment riding on the casters. The results are quieter working environments for your employees. Until now, noise reduction of casters has been achieved using shear discs. The Omega Wheel eliminates the need for these expensive shear discs. Using a spacer reducer, the Omega Wheel can be installed in any rig currently using the shear discs configuration.

### 3. Omega Tread Resists Chunking & Tearing

Due to the specially formulated polymers and its built-in, resilient design, the Omega Wheel is able to travel over rough surfaces and sharp objects without chunking or tearing as standard polyurethane wheels do. The result is a reduction in maintenance costs because the Omega Wheel lasts longer than standard polyurethane wheels.

### 4. Does Not Pick up Metal Chips

The Omega Wheel is resilient enough to roll over metal chips and floor debris without embedding the material into the tread as happens with standard polyurethane wheels. This results in quieter wheel revolution and cleaner floors in your plant.

### 5. Eliminated Need for Spring Load Casters

Due to the unique, patented web and spoke structure, the wheel is capable of rolling over a 1/2" bar without changing the axle line. This results in a more economical caster design than spring load casters for absorbing impact in a variety of sizes.

### 6. Simplified Installation

The Omega Wheels are built to industry standards and therefore, can be retrofitted to any caster rig using the same size wheel.

### 7. Cost Effective

When you consider the previous benefits in their totality, you will see that the Omega Wheel will provide longer service life, reduce maintenance costs, reduce noise, and in general operate for a fraction of the cost of standard polyurethane wheels over time.

## SPECIFICATIONS

| Wheel Diameter | Wheel Width | lbs. Capacity | Axle Diameter | Straight Roller Bearing | Ball Bearing    | Tapered Roller Bearing | Hub Length | Approx. Weight |
|----------------|-------------|---------------|---------------|-------------------------|-----------------|------------------------|------------|----------------|
| 6"             | 2"          | 1000          | 1/2"          | UOR-0620-08             | UOB-0620-08     | UOT-0620-08            | 2-7/16"    | 5.0            |
|                |             |               | 3/4"          | UOR-0620-12             |                 | UOT-0620-12            |            |                |
| 8"             | 2"          | 1200          | 1/2"          | UOR-0820-08             | UOB-0820-08     | UOT-0820-08            | 2-7/16"    | 9.0            |
|                |             |               | 3/4"          | UOR-0820-12             | UOB-0820-08-SPB | UOT-0820-12            |            |                |
| 8"             | 3"          | 1600          | 3/4"          | UOR-0830-12             |                 | UOT-0830-12            | 3-1/2"     | 13.0           |
|                |             |               | 1"            | UOR-0830-16             |                 | UOT-0830-16            |            |                |
|                |             |               | 1-1/4"        |                         |                 | UOT-0830-20            |            |                |
| 10"            | 3"          | 2000          | 3/4"          | UOR-1030-12             | UOB-1030-12     | UOT-1030-12            | 3-1/2"     | 21.2           |
|                |             |               | 1"            | UOR-1030-16             |                 | UOT-1030-16            |            |                |
|                |             |               | 1-1/4"        |                         |                 | UOT-1030-20            |            |                |

6" UOB sealed only

8" UOB sealed or "A" bearing

10" UOB sealed only

## Applications

- ◆ aerospace industry
- ◆ automotive industry
- ◆ air conditioning and warm air heat equipment
- ◆ carpet industry
- ◆ ceramic wall and floor tiles industry
- ◆ construction machinery and equipment
- ◆ conveyors
- ◆ dollies
- ◆ food products machinery
- ◆ industrial trucks industry
- ◆ mining machinery
- ◆ mobile home industry
- ◆ newspaper industry
- ◆ papermill industry
- ◆ refuse containers
- ◆ tow line
- ◆ tire manufacturing industry
- ◆ warehouse/storage facilities

## Field Test Results

The Omega Wheel has been tested and used extensively at automotive plants. The material handling department at a major automotive engine and fuel tanks plant was experiencing a high rate of hearing loss injuries. It was observed that stock trailers generated a great deal of noise when towed. Testing confirmed that empty trailers generated noise at about 114 dbA TWA- a level equivalent to a jackhammer, and well above OSHA guidelines. It was also noted that these same stock trailers were contributing to plant cleaning problems. This was due to chunking of existing caster wheels and their picking up of waste materials and debris. Finally, incidences of excessive scrap generation in certain critical machining and grinding operations were traced to floor vibrations. These were determined to be caused by passing stock trailers which had worn or damaged caster wheels.

## Results of Omega Installation

Four in-line stock trailers were pulled by a tow vehicle on a test course set up in the receiving area of the automotive plant. Trailers were tested empty, and then loaded with two baskets of cylinder block castings. The empty weight of each trailer was estimated at 800 lbs., and loaded weight was 9720 lbs. Two Quest Model M27 12EE Noise Meters were used to measure the noise generated by the trailers. One was handheld about six feet from the test route and measured noise over a distance of 150 feet. The second meter was mounted under the center of the second stock trailer. Three laps were made while accumulating the test data. After running the loaded and unloaded tests with standard single wheel casters, then two Omega Wheels mounted in dual Kingpinless™ casters were fitted on the same trailers for the second series of tests.

## Conclusions

The conclusion of the automotive plant's study showed that in aggregate, empty trailers averaged a reduction of 13.2 dbA with Omega Wheels. From the position of operators and bystanders, the Omega Wheels reduced noise by 13.8 dbA. Loaded trailers averaged a reduction of 4.6 dbA with Omega Wheels. For operators and bystanders, a 4.8 dbA noise reduction was achieved with the Omega Wheels. Visual inspection of the Omega Wheels during later use confirmed that they exhibited improved resistance to chunking and they did not pick up debris from the plant floor as readily as the standard casters. Finally, vibration measurements at critical machining operations showed a significant reduction in scrap generation or down-time when trailers equipped with Omega Wheels passed by. This was attributed to the Omega Wheel's ability to provide a smooth ride for the trailers and their resistance to chunking or picking up of foreign materials.

*The Omega Wheel is an innovative product that will make a huge impact on caster manufacturing as well as its customers and users. The Omega Wheel is made available today ONLY by RWM, the caster innovator.*

UP TO 2,000 POUND CAPACITY