

# **MASTERDRIVE**



## **POWER TRANSMISSION PRODUCTS**



**MASTERDRIVE**



***Your Source...***

Power Transmission Products....



...for Quality Cast Iron Sheaves,  
Pulleys and Bushings.

**MASTERDRIVE** 

Power Transmission Products....

**Our Company**

**Our People**

**Our Products**

**Our Service**



# **MASTERDRIVE**



# **Our Company**

Power Transmission Products....

## **Corporate Office - Main Warehouse Fort Atkinson, Wisconsin**



**OUR GOAL** – is to provide our distributors and partners in the *power transmission market*, the highest in quality, customer service and products available.

MasterDrive® Inc., located in Wisconsin – is an international supplier and manufacturer. We pride ourselves in exceeding all expectations in product knowledge, customer care and service excellence. **WE PROUDLY STAND BEHIND ALL OF OUR PRODUCTS.**

The distributors needs vary as much as the customers they serve. We have always strived to meet the needs of distributors. *We are committed to this philosophy and it shows.*

# MASTERDRIVE



# Our People

Power Transmission Products....

## Quality Employees:



WE strive for quality in every task we do...

From pulling and packing your order...

To a friendly voice on the end of the phone, to answer your questions and solve your problems....



**Eric Golemgeske**  
Engineering

**At Masterdrive- We Love our work!**

# MASTERDRIVE

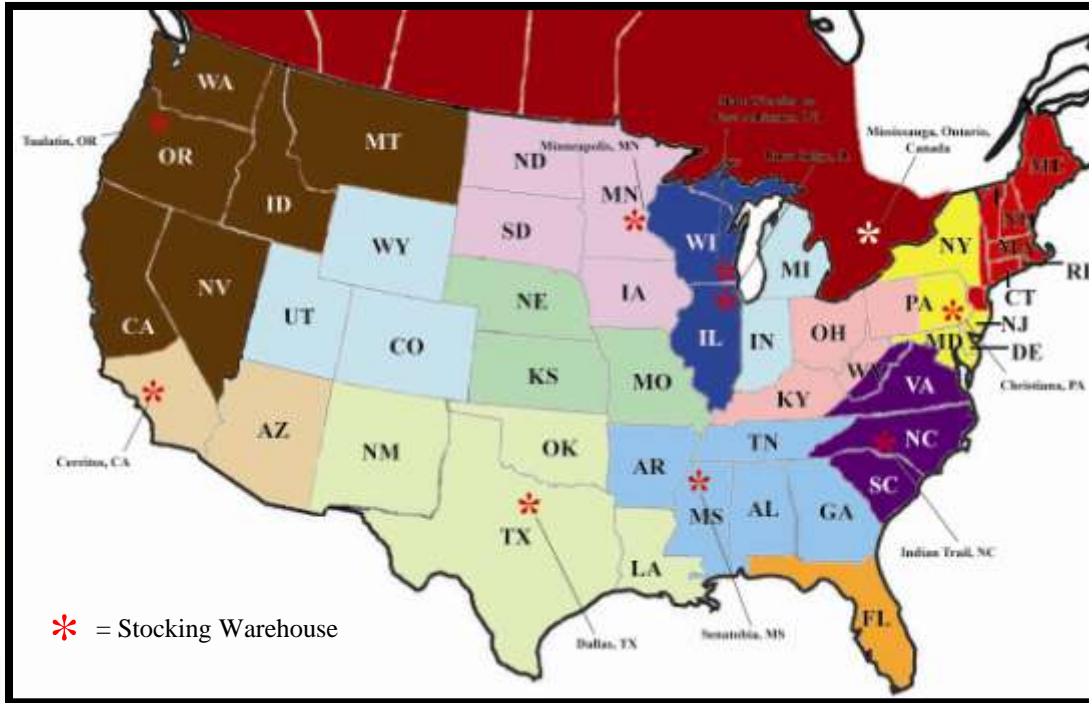


# Our People

Power Transmission Products....



**Brenna  
Smith**



**James  
Sontag**



**Eric  
Hutchison**



**Melissa  
Coleman**



**Angela  
Bauer**

# **MASTERDRIVE**



## ***Our Products***

Power Transmission Products....

We offer the best overall **quality and value** for all your commercial and industrial V-Belt applications.....

All our forgings come from the company owned and operated foundry allowing for the most stringent control of all material from original castings to the finished product.



Our sheaves are phosphorated before painting to prevent rust and increase cohesion between paint and metal.



The durable, machine grey, baked enamel finish offers a long-lasting clean appearance.

All sheaves are balanced for smooth trouble-free operation.



Power Transmission Products....

## Light Duty Sheaves

MasterDrive offers a complete line of 1 and 2 groove AK and BK cast iron sheaves.

- Outside diameters 1.75 in. through 18.75 in.
- Bored to sizes  $\frac{1}{2}$  in. through 1-7/16 in.
- H Bushings for all sheave sizes.





Power Transmission Products....

## HR Sheaves

Reverse Mountable Light Duty Sheave by MasterDrive

- Faster Mounting when “bushing first” is required to keep assembly close to the shaft support bearings.
- Greater flexibility in belt alignment.
- Reduced bearing load.
- Increases efficiency of assembly lines.
- Made and shipped from our main facility in Wisconsin.
- Increases efficiency of assembly lines.
- Available for immediate delivery.





## QD Bushed Sheaves

Single groove to multiple groove, MasterDrive cast-iron sheaves offer the highest in quality, workmanship and appearance.

- Available in A/B, C, 3V, 5V and 8V belt grooves.
- 1 through 12 grooves
- Outside diameters 2.20 in. through 53.00 in.
- All use the proven QD bushing system.



**MASTERDRIVE**

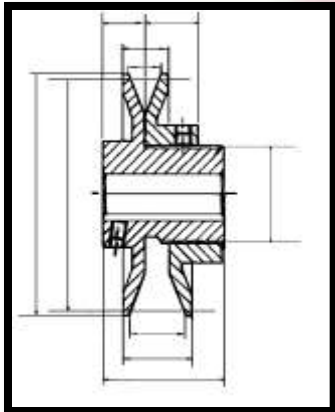


***Our Products***

Power Transmission Products....

# 1VL, 1VP & 2VP Variable Pitch Sheaves

Now You Have a Choice....



MasterDrive Inc. The Competition

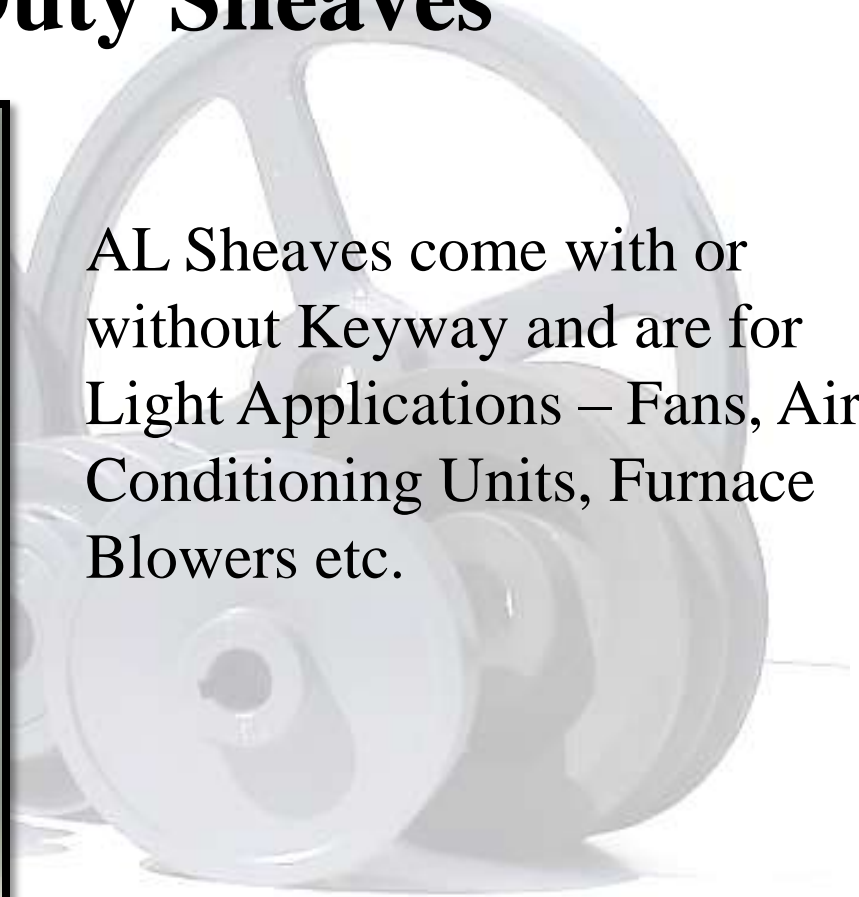
***The Quality is in the Iron.***



## AL Light Duty Sheaves



AL Sheaves come with or without Keyway and are for Light Applications – Fans, Air Conditioning Units, Furnace Blowers etc.



# **MASTERDRIVE**



# **Our Products**

Power Transmission Products....

## **MasterDrive V-Belts**

MasterDrive understands the need for controlling costs in a world market that continues to be more competitive. We know the importance of maintaining the high quality standards our customers need. MasterDrive sheaves and v-belts give the competitive advantage. Masterdrive is proud to now supply a complete v-belt package that offers quality equal to any other sheave and belt combination available today.

### **Light Duty FHP V-Belts**

**3L  
4L  
5L**

### **Classical V-Belts**

**A, AX  
B, BX  
C, CX**

**Also available  
banded.**

### **Narrow V-Belts**

**3V, 3VX  
5V, 5VX  
8V**

**Also available  
banded.**



All belts available as domestic and import.



Power Transmission Products....

## Bushings

All bushings from MasterDrive are stocked in inch and metric sizes.

- QD and DST bushings are machined from *ductile iron*
- TB bushings are machined from *cast iron*.
- Bolt and thread specifications *meet or exceed* current industry standards



QD Bushings



TB Bushings



DST Bushings

# **MASTERDRIVE**

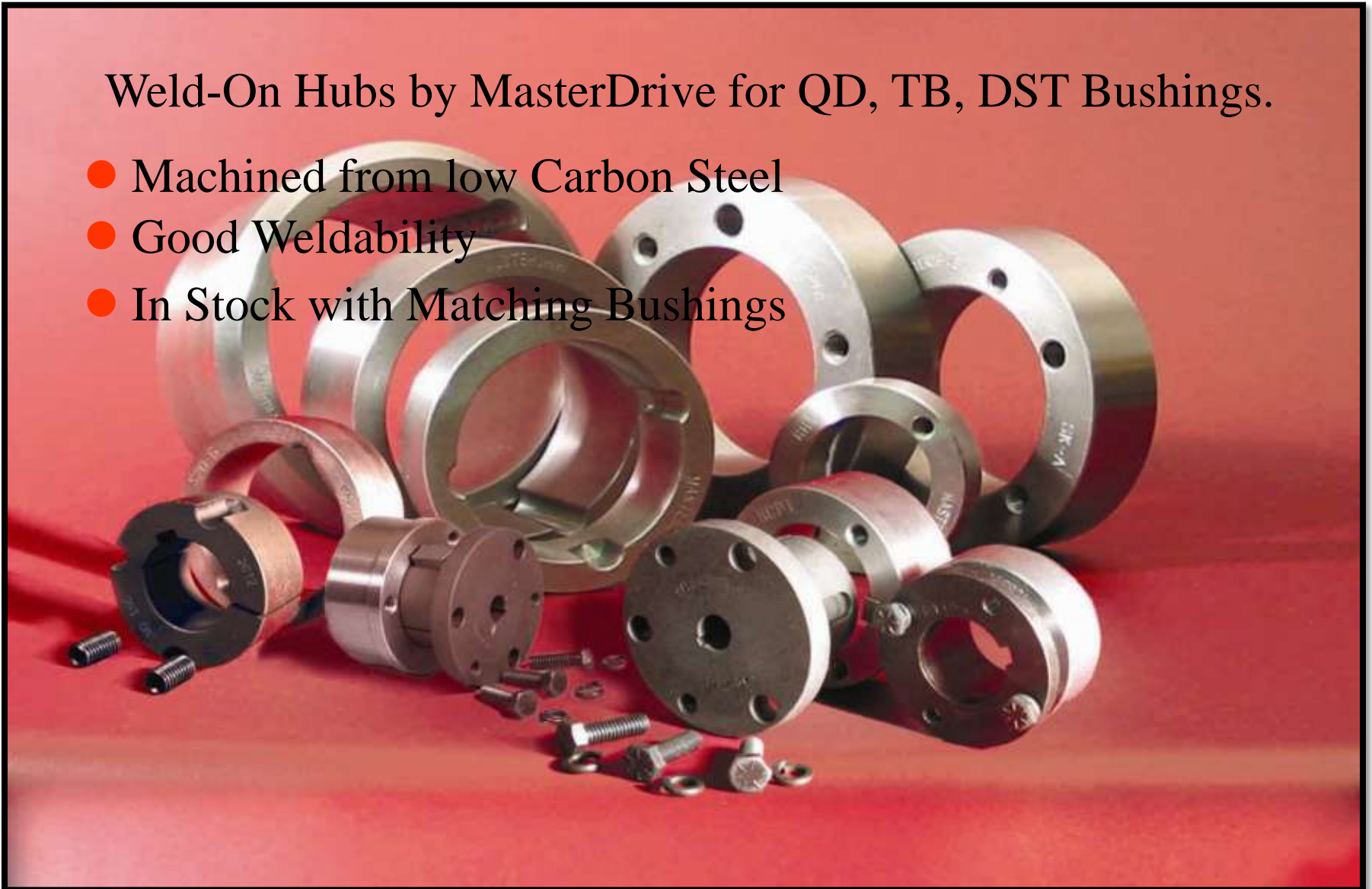


# ***Our Products***

Power Transmission Products....

Weld-On Hubs by MasterDrive for QD, TB, DST Bushings.

- Machined from low Carbon Steel
- Good Weldability
- In Stock with Matching Bushings



# MASTERDRIVE



## Our Products

Power Transmission Products....

Jaw couplings from MasterDrive are stocked in inch and metric sizes.

- All couplings standard industry interchangeable
- Machined from cast iron
- Inserts come in buna-NBR, hytrel, urethane & bronze
- Jaw couplings sizes L035 to L225





## MasterDrive BCS Couplings Rigid Couplings

- Connects two shafts with different diameters.
- Uses two QD or DST bushings.
- Easy and cost-effective



Available in these sizes:

BCS-SF

BCS-SK

BCS-SD

BCS-H

BCS-P1

BCS-Q1

Note: Two Bushings need to be ordered per coupling.

# MASTERDRIVE



## Our Service

Power Transmission Products....



**High Service levels:** 95+% daily fill rate for all SKU's per order, 95% of all orders processed same day.

**Our warehouses** are stocked with a (state of the art) computer ordering system, to guarantee that we always have what you need.

**Customer service** that understands the needs in regard to P & A, quoting, engineering and print design, along with priority attention to correct errors if they occur.

**Customer specific labeling** of parts including packing lists and invoices.

**We stock everything** in our catalog, which includes a diverse selection of large and multi-groove sheaves for the biggest jobs.

**Blanket orders** – stocked and processed per requirements.

**UPS tracking information** e-mailed same day for all shipments from Wisconsin.

**No minimum order** and low prepaid freight limits.

**Direct shipping**

**Distributor protection** for known accounts with deviated pricing



# MASTERDRIVE



## Our Service

Power Transmission Products....



**Machining center** – product is rebored and rebroached to meet a specific bore size in the event our inventory is depleted. Backorders are filled, in most cases, with no delay in shipment AND at no extra cost.

Over the past few years we have been able to expand our machining services to include custom modifications and M.T.O. parts.





## Dynamic Balancing

All sheaves supplied by MasterDrive are statically balanced (1-plane). If dynamic balancing (2-plane) is required MasterDrive can do this at the time of production or in Wisconsin.

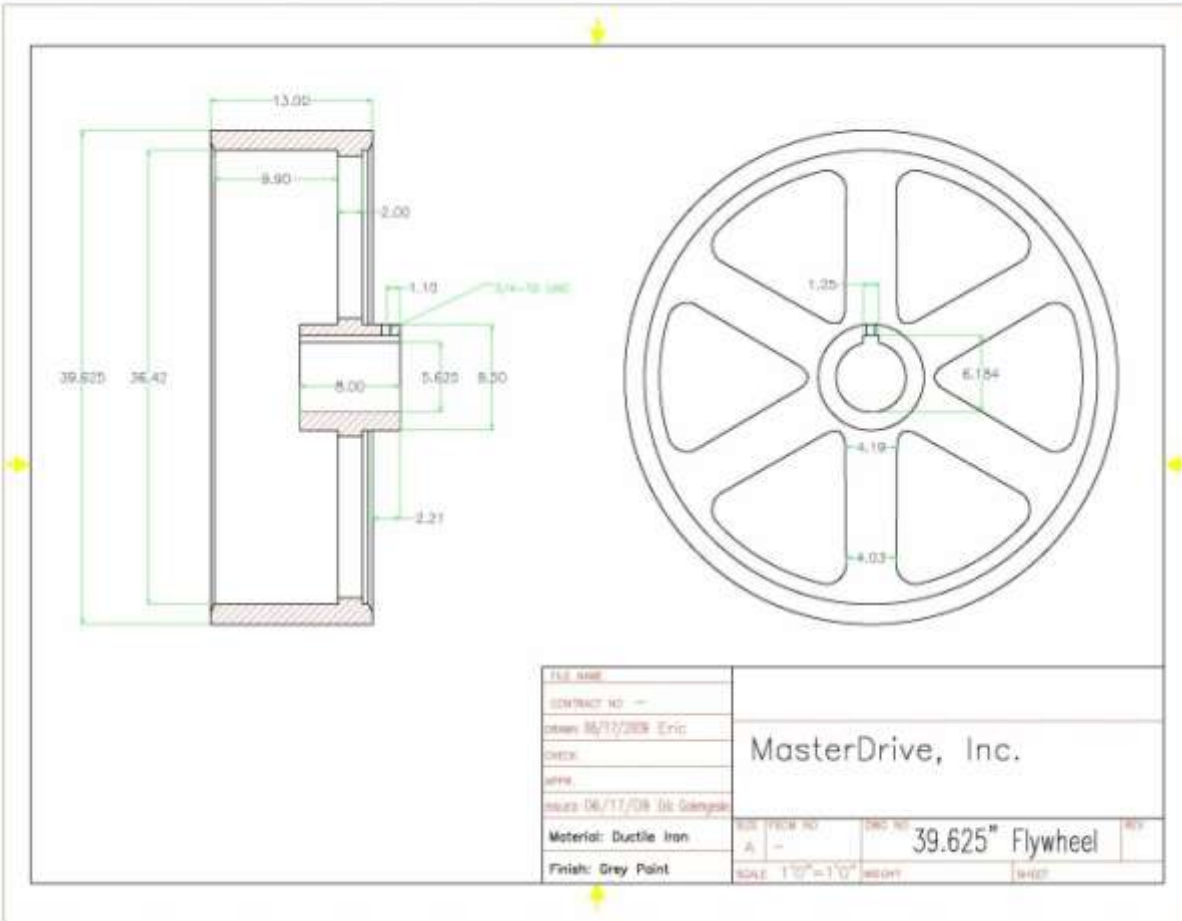
Check MasterDrive website for dynamic balancing standards.





## Engineering and Print Design

MasterDrive offers these services overseas AND in our main facility in Wisconsin. This enables us to provide even more timely shipments, a broader product range, and offers our customers many made-to-order products with greatly reduced lead times. Our engineering staff can work from your CAD drawings, or make them for you. Their expertise and design excellence is available to serve all needs.



# **MASTERDRIVE**



Power Transmission Products....

## ***Our Service***



In conjunction with our foundry, we are your made-to-order specialists for almost any design or application.

# **MASTERDRIVE**



# ***Our Service***

Power Transmission Products....



## **MTO Capabilities**



# Overseas Service & Capabilities



QUALITY SYSTEM  
CERTIFICATE

PANORAMIC  
VIEW





Power Transmission Products....



## Iron Classes for Melting and Pouring

Gray: ASTM 25 thru 35

Ductile: ASTM 65-45-12 & 80-55-06

Sizes range from a few inches in diameter up to 6,000 lbs cast weight.



## Machining and Processes

- Turning (up to 108")
- Milling (up to 64" x 40")
- Hobbing
- Drilling
- Tapping
- Broaching
- Balancing
- Painting
- Assembly





Power Transmission Products....

## **In House Testing**

- **Chemical Analysis**
- **Tensile Testing**
- **Hardness Testing**



**MASTERDRIVE**



Power Transmission Products....

***Our Service***

## Manufacturing Facility

All molds packed with mechanical vibratory machines.



# MASTERDRIVE



Power Transmission Products....

## Our Service



New automated Hunter packing line.  
Purchased in the USA.  
Facility opened mid-2008.



# MASTERDRIVE



# Quality

Power Transmission Products....

**STORK®**

Mr. Terry Schroeder  
Masterdrive, Inc.  
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W8622 Willis Ray Road  
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**Stork Technimet, Inc.**

Testing • Product Evaluation • Failure Analysis

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**Report**

**Subject** : Material Specification for Gray and Ductile Iron Castings

Dear Mr. Schroeder:


As defined during our recent discussions and our meeting it was requested that a material specification be prepared for the sheaves, couplings and bushings manufactured from gray and ductile cast iron. It was stated that the gray iron parts should be manufactured from Class No. 30 Gray Iron, as this was similar to the Grade HT220 material defined in ISO 185, whereas the ductile iron parts should be made from Class 65-45-12 material. Based on our discussions, the material specification would reference standard ASTM specifications which would define the manufacturing controls required to produce the sheaves, couplings and bushings. In preparation of the specifications, the ISO 185, "Gray Cast Iron-Classification", the SAE J431, "Automotive Gray Iron Castings" and SAE J434, "Automotive Ductile (nodular) Iron Castings" specifications were also referenced.

If you have any questions concerning the material specifications, please call.

Respectfully submitted,

Craig C. Brown  
Metallurgical Engineering Manager

nmb



Stork Technimet out of New Berlin, WI is an A2LA accredited metallurgical testing facility that MasterDrive uses for all testing and analysis.

# MASTERDRIVE



# Quality

Power Transmission Products....

**STORK**

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Testing • Product Evaluation • Failure Analysis

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Website : [www.technimet.com](http://www.technimet.com)

**Report**

**MATERIAL SPECIFICATION FOR  
DUCTILE IRON CASTINGS**

Craig C. Brown



### II. REFERENCE DOCUMENTS

2.1 The following documents of issue in effect on the date of casting purchase form a part of this specification to the extent referenced in this material specification.

Specification No.	Description
ASTM A 247*	"Evaluating the Microstructure of Graphite in Iron Castings"
ASTM A 536*	"Ductile Iron Castings"
ASTM A 802*	"Steel Castings, Surface Acceptance Standards, Visual Examination"
ASTM A 834*	"Common Requirements for Iron Castings for General Industrial Use"
ASTM E 8	"Tension Testing of Metallic Materials"
ASTM E 10	"Brinell Hardness of Metallic Materials"
ASTM E 689*	"Reference Radiographs for Ductile Iron Castings"
ASTM E 1030*	"Radiographic Examination of Metallic Castings"

\*Included in appendix.

### III. COMPOSITION

3.1 The chemical composition of the ductile iron is subordinate to the mechanical properties, but the typical chemical composition of unalloyed iron should conform to the following ranges:

Element	Weight Percent
Total Carbon	3.20-4.10
Silicon	1.80-3.00
Manganese	0.10-1.00
Phosphorus	0.05 max.
Sulfur	0.02 max.

# MASTERDRIVE



# Quality

Power Transmission Products....

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**Report**

**MATERIAL SPECIFICATION FOR  
GRAY IRON CASTINGS**

Craig C. Brown



### II. REFERENCE DOCUMENTS

- 2.1 The following documents of issue in effect on the date of casting purchase form a part of this specification to the extent referenced in this material specification.

Specification No.	Description
ASTM A 48*	"Gray Iron Castings"
ASTM A 247*	"Evaluating the Microstructure of Graphite in Iron Castings"
ASTM A 802*	"Steel Castings, Surface Acceptance Standards, Visual Examination"
ASTM A 834*	"Common Requirements for Iron Castings for General Industrial Use"
ASTM E 8	"Tension Testing of Metallic Materials"
ASTM E 10	"Brinell Hardness of Metallic Materials"
ASTM E 802*	"Reference Radiographs for Gray Iron Castings up to 4-1/2 inches in Thickness"
ASTM E 1030*	"Radiographic Examination of Metallic Castings"

\*Included in appendix.

### III. COMPOSITION

- 3.1 The chemical composition of the gray iron is subordinate to the mechanical properties, but the typical chemical composition of unalloyed iron should conform to the following ranges:

Element	Weight Percent
Total Carbon	3.20-3.50
Silicon	1.90-2.30
Manganese	0.60-0.90
Phosphorus	0.15 max.
Sulfur	0.15 max.
Approximate CE	3.9-4.2

CE = %C + 1/3% Si

# MASTERDRIVE



Power Transmission Products....

# Metallurgical Analysis



## The Testing

# MASTERDRIVE



Power Transmission Products....

## Metallurgical Analysis



Proves

the *Quality!*

# MASTERDRIVE



Power Transmission Products....

# Metallurgical Analysis

**STORK**  
Materials Technology

Stork Technimet, Inc.  
Failure Analysis - Materials Testing - Product Evaluation

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Report No. 0804-23503

**TORSIONAL FATIGUE  
OF  
TAPER BUSHINGS**

Philip M. Dindinger, P.E.  
July 18, 2008

It is our policy to retain components and sample remnants for a minimum of 30 days from the report date, after which time they may be discarded. The data herein represents only the item(s) tested. This report shall not be reproduced, except in full, without prior permission of Stork Technimet, Inc.

Stork Technimet, Inc. is an operating unit of Stork Materials Technology B.V., Amsterdam, The Netherlands, which is a member of the Stork group.

Page 1 of 6

Example of testing analysis  
done by Stork Technimet for  
MasterDrive

Torsional Fatigue Test

# MASTERDRIVE



Power Transmission Products....

# Metallurgical Analysis

**STORK**  
Materials Technology

Stork Technimet, Inc.

Future Analysis - Materials Testing - Product Evaluation

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Report No. 0902-26828

**METALLURGICAL ANALYSIS  
OF TWO  
POWDER METAL HUBS**

Craig J. Schroeder, P.E.

March 10, 2009

It is our policy to retain components and sample remnants for a minimum of 30 days from the report date, after which time they may be discarded. The data herein represents only the item(s) tested. This report shall not be reproduced, except in full, without prior permission of Stork Technimet, Inc.

STORK Chemical Metallurgy

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Page 1 of 10

Example of testing analysis done by Stork Technimet for MasterDrive

Powder Metal Test

# MASTERDRIVE



Power Transmission Products....

# Metallurgical Analysis

Example of testing analysis done by Stork Technimet for MasterDrive

Hardness Test

**STORK**  
Materials Technology

Stork Technimet, Inc.

Failure Analysis - Materials Testing - Product Evaluation

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**Report No.** : TEC002700P  
**Date** : May 14, 2009  
**Subject** : Hardness Testing of an LIM Drive Wheel Dwg. No. 055590

Dear Mr. Golemeske:

One LIM drive wheel was submitted to Stork Technimet for hardness testing. Masterdrive's customer was concerned over wear issues. The wheel was pitted along the outer diameter crown after 600 hours of reported use. The wheel was reportedly made from QT450-10 ductile iron. It was requested that the hardness of the wheel be determined along the outer diameter (o.d.) crown. The scope of the project included visual inspection and hardness testing only.

The as-received condition of the wheel is shown in Figure 1. The keyway was identified as the 12 o'clock position for the purposes of this study. Closer views of the outer diameter at the 12, 3, 6, and 9 o'clock positions are shown in Figures 2 through 5. A band of rough texture is evident at the center line of the outer diameter. The texture was roughest at the 6 o'clock position.

The o.d. of the wheel was tested in accordance with ASTM E 10-07. The surface hardness at the 3 o'clock position was 179 HBW. A hardness specification for the wheel was not provided. The typical hardness range for Grade D450 ductile iron is 156 - 217 HBW.

If you have any questions concerning the contents of this report, please contact me. It should be noted that it is our policy to retain components and sample remnants for 30 days from May 14, 2009, after which time they will be discarded. If you would like to make alternate arrangements for disposition of the material, please let me know. This project shall be governed exclusively by the General Terms and Conditions of Sale and Performance of Testing Services by Stork Technimet, Inc. a Wisconsin business corporation d.d. November 4, 2008. In no event shall Stork Technimet, Inc. be liable for any consequential, special or indirect loss or any damages above the cost of the work.

Respectfully submitted,  
Electronic Original

Craig J. Schroeder, P.E.  
Senior Metallurgical Engineer

# MASTERDRIVE



## Our Service

Power Transmission Products....

### **MASTERDRIVE INC.**

701 Highland Ave  
R.O. Box 157  
Fort Atkinson, WI 53538  
Toll Free Phone (888) 922 8767, Phone (920) 563 5838, Fax (920) 563 5650

Date:

To:

From:

Re: RGA #

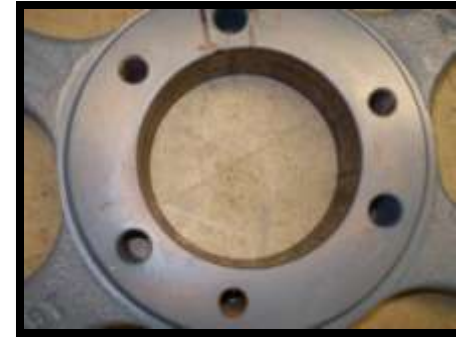
One piece of sheave part #: 4/5V1600E was returned to MasterDrive for inspection and then issuance of credit, if allowed.

Upon inspection it was noted that the crack in the sheave was located thru one of the bolt holes. Inspection of this part shows grease or a similar substance was in the bolt hole of the part (see pictures). This substance acts as a lubricant for the two mating pieces of the sheave hub and bushing. Extreme force on the bolts or presence of a lubricant in the hub or on the bolts allows the tapered hub and bushing to compress in excess. The compression creates excess forces on the sheave hub, leading to failure of the cast iron at its narrowest point, which is the bolt hole area. Even if a torque wrench is used (as recommended) the torque values would not be accurate due to the substance acting as lubricant – over tightening (over torque) will occur.

No credit will be issued for this item. If a deduction has been taken before credit was issued, please remit on your next payment.

Please be sure to review the mounting procedures with your customer to ensure the proper techniques are used when mounting QD style sheaves and bushings. Instructions may be found in each bushing box or in our catalog.

Please feel free to contact me with any questions or comments.



Anti-Seize Lubricant used in installation

A full report with pictures is sent for all damaged parts that are returned and are not under warranty.

**MASTERDRIVE** 

Power Transmission Products....

# **OVERVIEW**

**Our Company**

**Our People**

**Our Products**

**Our Service**

Makes us an excellent choice to meet your power transmission needs.

**MASTERDRIVE** 

**Thanks!**

Power Transmission Products....

