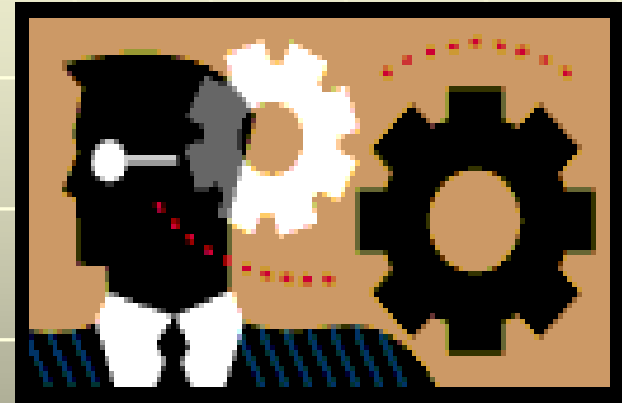


# ENGINEERS

MAKES

THE

# WORLD



*PRACTICAL TRAINNING*  
*at*

**GABRIEL**  
Gabriel India Limited

*GABRIEL INDIA LTD. , GURGAON.*

Gabriel India Limited, a leading name in the Indian auto component industry, manufactures Ride Control Products and Engine Bearings.

Established in 1961 in Mumbai for the manufacture of shock absorbers.

Gabriel is the market leader for Ride Control Products in India.

It is the flagship company of the USD 488 million [Anand Automotive Systems](#) - a leading manufacturer and supplier of the widest range of automotive components and systems in India. Gabriel India, with a turnover of over USD 106 million is a major supplier to all segments of the market - OE, Aftermarket and Exports. The Company is in collaboration with ArvinMeritor Inc. and Federal-Mogul of USA.

Gabriel India has nine plants located across six states of the country and was the first Company in India to be accredited with ISO 9002 Certification as far back as 1993 for shock absorbers, struts and front forks. Today, almost all facilities of the company have ISO 9002 / 9001 / 14001, QS 9000, OHSAS 18001 and ISO / TS 16949 certifications

## CERTIFICATION

- |              |                               |
|--------------|-------------------------------|
| ISO 9002     | - Nashik, Hosur, Noida        |
| ISO 9001     | - Mulund                      |
| ISO 14001    | - Hosur, Dewas, Pune          |
| QS 9000      | - Noida, Hosur, Dewas, Nashik |
| ISO/TS 16949 | - Hosur, Pune, Dewas          |
| OHSAS        | - Hosur, Dewas, Pune          |



Gabriel - Gurgaon



Gabriel - Pune



Gabriel - Nashik



Gabriel - Dewas



Gabriel - Hosur



Gabriel - Noida



**GABRIEL INDIA LTD.  
MANUFACTURES :**

**1.RIDE CONTROL PRODUCTS**

**2.ENGINE BEARINGS**



### OE CUSTOMERS ►

#### Cars and Utility Vehicles

Mahindra & Mahindra,

Fiat,

Hindustan Motors,

Toyota,

Bajaj Tempo,

Suzuki

Hyundai

Ford

Mitsubishi

Tata

#### 2-3 Wheelers

LML (Scooters),

Bajaj (Scooters & Motorcycles),

TVS (Scooters & Motorcycles),

Honda Motor Cycles & Scooters India,

Yamaha (Motorcycles)

Kinetic Motors

Kinetic Engineering (Motorcycles)

Enfield (Motorcycles)

#### LCVs / HCVs

Mahindra & Mahindra

Eicher Motors

Swaraj Mazda

Telco

Bajaj Tempo

Ashok Leyland

Hindustan Motors



# EXPORT MARKETS ▶

- ▶ **China**
- ▶ **Russia**
- ▶ **Europe**
- ▶ **Far East**
- ▶ **Asia Pacific**
- ▶ **Middle East**
- ▶ **Africa**



# OE CUSTOMERS ►

## **OE Customers : Thin-wall Bearings**

### **Utility Vehicles**

Telco  
Hindustan Motors  
Mahindra & Mahindra

### **Tractors**

Escorts  
HMT  
Mahindra & Mahindra  
New Holland  
Sonalika International

### **LCVs / HCVs**

Tata Cummins  
Telco  
Eicher Motors  
Force Motors  
Ashok Leyland

### **Engineering Sector and Others**

Cummins India  
Carrier Aircon  
Sona Koyo Systems  
Eicher Demm  
Clutch Auto  
Atlas Gears  
Dhanu Metals  
PTL

### **Large Size Bearings**

### **Industries / Marine**

Diesel Loco Works (Alco 251)  
Garden Reach - Navy (KV Series)  
Raj Prexim - (Skoda A&B)  
Cummins India Ltd. - (K Series)





# EXPORT MARKETS ►

## Thin Wall Bearings

- ▶ North America
- ▶ South America
- ▶ United Kingdom
- ▶ Sri Lanka

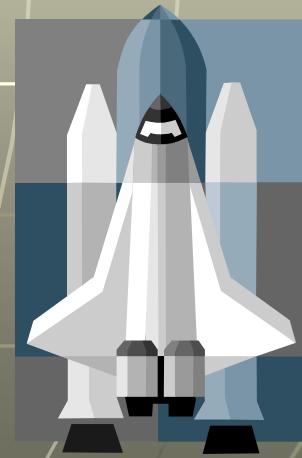
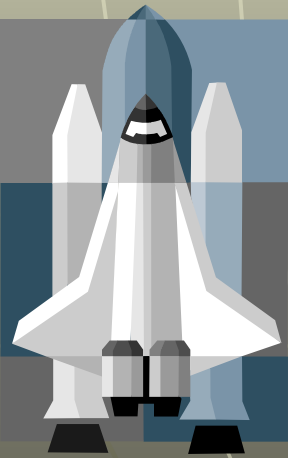
## Large Size Bearings

- ▶ North America
- ▶ Singapore
- ▶ United Kingdom
- ▶ Middle East
- ▶ Europe

# PROJECT

( Cost Reduction Solution )

## KNUCKLE HEATING PROJECT

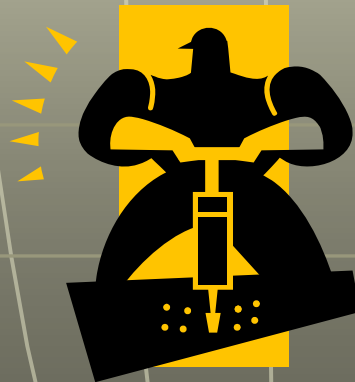


# TITLE PAGE

## PROJECT:

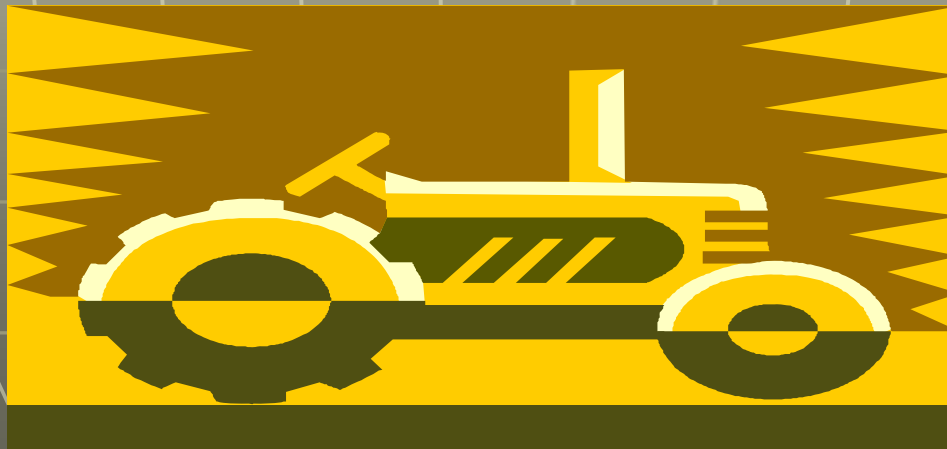
1.Process **WITH HEAT TREATMENT**

2.Process **WITHOUT HEAT TREATMENT**

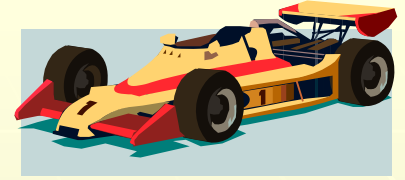


# ABSTRACT

We Choose the process “**WITHOUT HEAT TREATMENT**” for **TUBE FITTING IN KNUCKLE** as it eliminates many side effects of heating process steps, which are very important role players in increasing the *useless spending & time, labour, enviromental & safety losses.*



# INTRODUCTION



## SUBJECT:

This report describe the various saving aspects ,which will rise after elimination of heating **process** for **knuckle Tube Fitting**.

## WHY ?

Elimination of this process will help in saving different subjects like **MONEY ,ELECTRIC ENERGY, CYCLE TIME,LABOUR,SPACE,PRODUCTIVITY,ENVIROMENT,SAFETY ,MAINTENANCE TIME,DOWN TIME** etc.

## HOW !

For shock absorber manufacturing ,we need a step of tube fitting in the Knuckle. For this purpose, we **heat the internal diameter** of the knuckle. Due to this heating ,internal diameter of the knuckle got **expanding** a little bit and the tube fits in it easily. After the cooling ,the **knuckle gets its original diameter & the tube got fixed in it.**

But now we are trying to eliminate this heating process & the tube will be fixed in the knuckle only by **press machine** after **decreasing** the **external diameter** of tube in **hundreds of micron.**

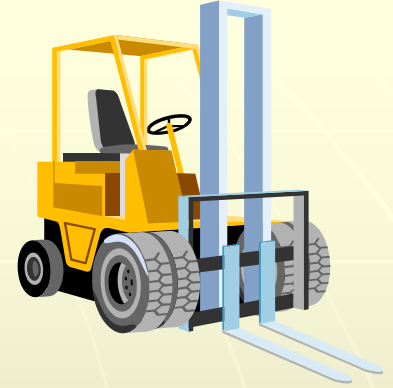


But now we are trying to eliminate this heating process & the tube will be fixed in the knuckle **only by the press machine after decreasing the external diameter of the tube in hundred of microns.**

**This will not require the previous heating process.**



# BACKGROUND

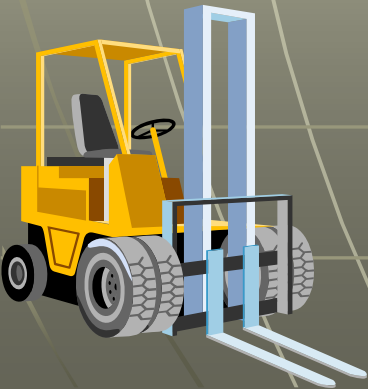


For heating process, we needs:

HEATING MACHINE, ELECTRIC ENERGY, MACHINE OPERATOR, CYCLE TIME, FLOOR AREA, EXHAUST SYSTEM, MAINTENANCE OF MACHINE & EXHAUST SYSTEM, COOLING PROCESS etc.

They needs much **MONEY & TIME**. We cannot sacrifice with these two terms **At Any Cost**

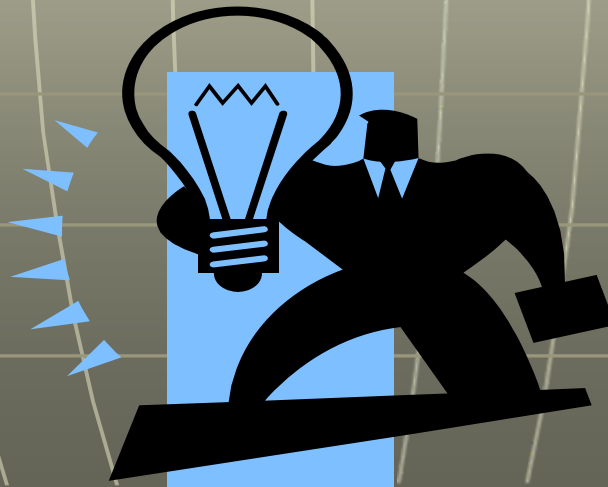
We want to replace this process with the never one, which will give same results in **LESSER RESOURCES & IMPROVED QUALITY**.



## Non Heating Process eliminates:

> **ENERGY, TIME, SAFETY, COST NEEDS** etc, which required during the **heating process**

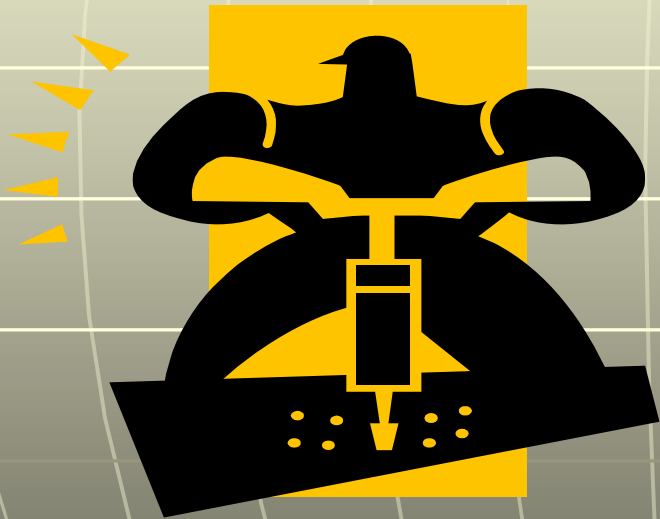
\* It shows the **NON HEATING PROCESS** is **BETTER** than the **HEATING PROCESS** in many order & will help in increasing the **Savings, Productivity, Quality** etc.





# DISCUSSION

**Discussion includes:**



**COST**

**PRODUCTIVITY**

**SPACE**

**WORKING ENVIRONMENT**

**QUALITY**

**SAFETY**

**VALIDATION**

# RESULTS



- # With the help of **non heating process** pure saving amount of **RS. 2,70,270 per annum.**
- # We also find **better productivity** from this process.
- # This process eliminated the **accidents or misshapeness.**



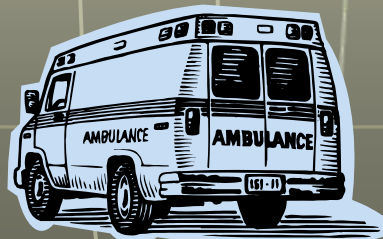
# VALIDATION

The **non heating process** is following by “ **MUNJAL SHOWA** ”, which provides **STRUTS** for **MARUTI**.

This process is approved by **MARUTI**.



This **validation** confirms our try and we should start moving ahead on this way immediately.



**THANK YOU.**

**Any Queries ?**

