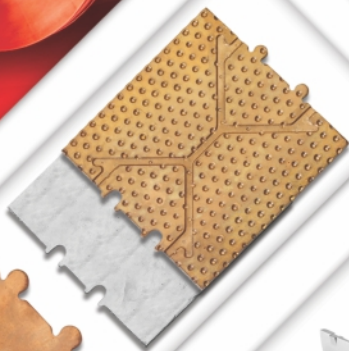




**Automotive Components**



- Engine Bearings •
- Bushings •
- Thrust Washers •
- Bi-metallic Strips •
- Brake Components •



**BENARA UDYOG LIMITED**  
IN TECHNICAL COLLABORATION WITH NTE KOREA



## ABOUT US

Benara Udyog Limited (BUL), established in the early 1970s, is one of the premier manufacturer of Engine Bearings, Bushings, Thrust Washers, Bi-Metallic Strips and Brake Components. We have a technical collaboration with NTE-South Korea, which equips us to produce 4000000 Bushes, 2000000 Engine Bearings, 1000000 Thrust Washers and 100000 Brake Pads monthly, making us one of the largest producers in India.



We understand that the Engine, Transmission and Brake Components Industry is one of the most dynamic industry, where high level of competition and customer expectations demand constant innovation coupled with the continuous process of research and development. We have undertaken an extensive backward integration program to ensure world class quality manufacturing standards with on-time deliveries at globally competitive prices. We are committed to delivering absolute customer satisfaction.

We have a well-integrated manufacturing facility backed by an in-house design and product development division with tool room facilities. The imported, fully automated state of the art manufacturing plants in Agra are equipped with a variety of hydraulic & pneumatic presses, automatic engine bearing transfer line and various advanced CNC machines.

The R&D center is equipped to validate the performance of our products against the most stringent international parameters.

Our corporate mantra ....

## QUALITY ALWAYS

Quality is an obsession at Benara Udyog Limited as we follow extensive quality control measures at every step in the manufacturing process - beginning with the procurement of raw materials to the final finish, packaging and dispatch of the goods.

Our quality systems are as per the **ISO 9001:2008 & TS 16949:2009** guidelines and have been certified by **BSI**

**BUL** was recently awarded for Outstanding Contribution Towards Supply Chain Management in the area of Forgings & Bar Stock by Eicher Motors. International Tractor Limited too has recognized our excellent systems by giving us the DOL Supplier Award. We have the distinction of being the preferred supplier to many OEMs.



## CLIENTELE

Our market leadership has been attained and preserved by successful utilization of our products by major global and domestic automotive manufacturers. That's why **BUL** is now preferred choice of all the OEMs.





## PRODUCT PORTFOLIO

### ENGINE BEARINGS

#### THIN WALL

- Main Bearings / Crankshaft Plain Bearings
- Connecting Rod Bearings / Big End Bearings
- Air Compressor Bearings

#### THICK WALL (BI-METAL / TRI-METAL)

- Main Bearings / Crankshaft Plain Bearings
- Connecting Rod Bearings / Big End Bearings
- Air Compressor Bearings

#### THRUST WASHERS

- Engine Thrust Washers / Engine Thrust Bearings
- Gear Box Thrust Washers
- Thrust Plates
- Differential Thrust Washers





## PRODUCT PORTFOLIO

### BUSHINGS

#### THIN WALL – BIMETAL

- Connecting Rod Bushings
- King Pin Bushings
- Cam Bushings
- Valve Rocker Bushings
- Bell Crank Bushings
- Front Spindle Bushings
- Center Pin Bushings
- Idler Gear Bushings
- Steering Bushings
- Brake Pedal Bushings
- Clutch Pedal Bushings
- Governor Drive Bushings
- Trunnion Bushings
- Shackle Bushings
- Leaf Spring Bushings

#### THICK WALL (BI-METAL / TRI-METAL)

- Tie-Bar Bushings
- Cross Head Bushings
- Stub Shaft Bushings
- Lube Oil Pump Bushings
- Scavenging Pump Bushings
- Turbo Charger Bushings
- Idler Gear Bushings
- Governor Drive Bushings
- Trilobe Bushings
- Clutch Drive Bushings

#### BRONZE BUSHINGS

Bronze bushings are made of various compositions such as LTB-4, RG-7, in size range upto 200mm OD and 250mm length. These bushes are having the following special properties :

- a) Possibilities of casting defects like blow holes, porosity, cavities etc. are totally eliminated.
- b) Tensile, creep and fatigue strength is increased.
- c) Metal is being melted in ultra modern electric furnace and due to the stirring current complete lot of the bushes have a homogenous alloy mixture.
- d) Machining of our bushes is done on heavy duty machines, therefore high standard of tolerance is being maintained consistently. This helps in increasing the Bush and Shaft life many folds which is not possible in case of bushes manufactured on ordinary lathe machines.



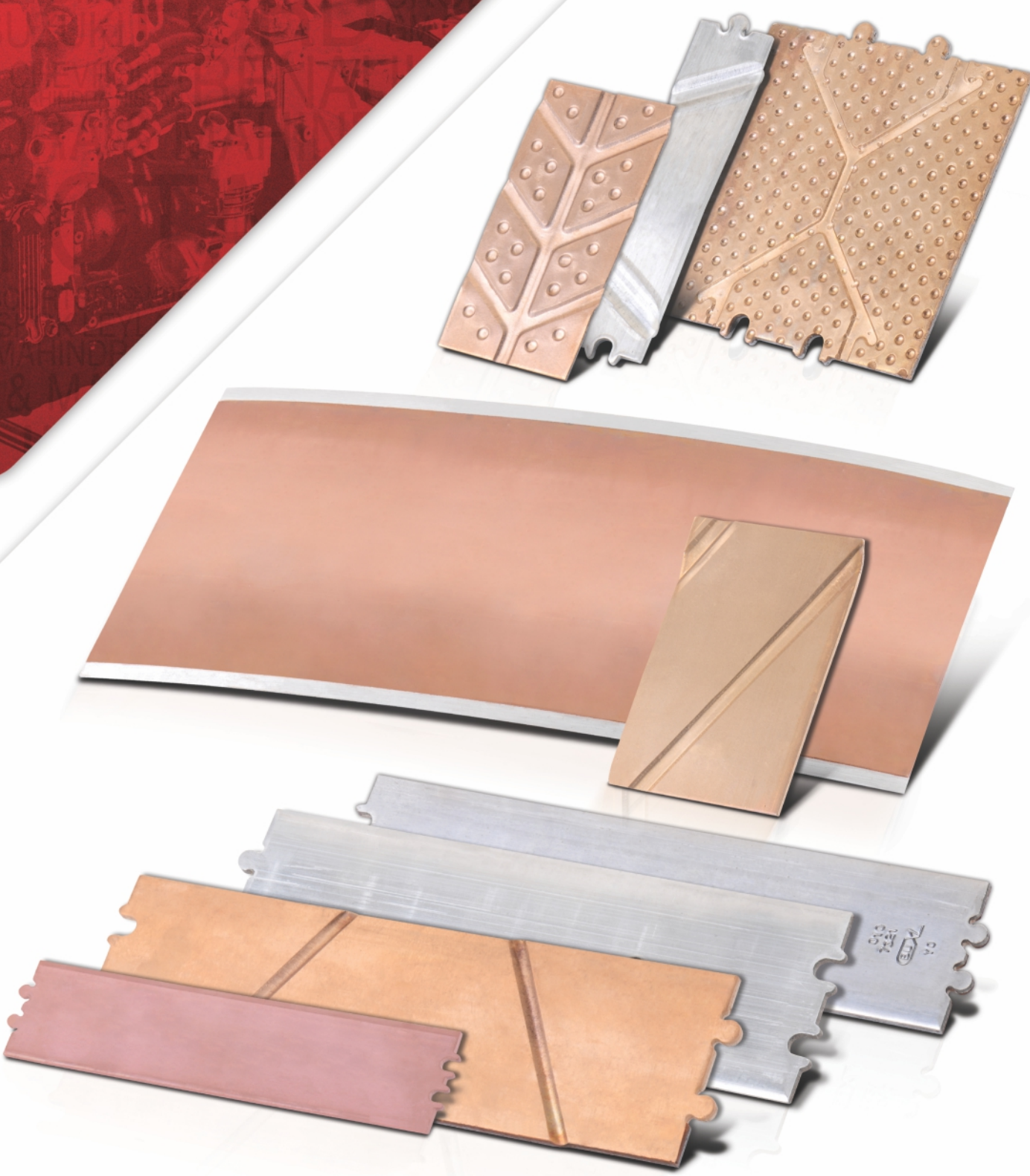


## BIMETALLIC STRIPS & CENTRIFUGAL CASTINGS

The selection of material for Engine Bearings, Formed Bushings and Thrust Washers remains a process of assessing the application and considering which material has the characteristics to best handle the requirements at a minimum cost. The sound material selection process not only contemplates technical requirements such as speed, load, lubrication, ambient conditions, and type and length of service but also satisfies economic and traditional factors.

### MATERIAL SPECIFICATION:

SPEC.	PB (%)	SN (%)	CU (%)	ZN (%)	NI (%)	SB (%)
SAE 792	9-11	9-11	BAL.	0.50 MAX	0.50 MAX	-
SAE 793	7-9	3.5-4.5	BAL.	4.0 MAX	0.50 MAX	0.5 MAX
SAE 794	21-25	3-4	BAL.	3.0 MAX	0.50 MAX	0.5 MAX
SAE 49	21-27	1.75-2.75	BAL.	0.50 MAX	0.50 MAX	0.5 MAX
SAE-12	0.50 MAX	BAL.	2.5-3.5	0.005 MAX	-	7-8
SAE-14	BAL.	8-10	0.8-1.2	-	0.05-0.15	7-8
LFBU-5	-	9-11	BAL.	-	-	2-4
LFBU-7	-	9-11	BAL.	-	-	-





## BRAKE COMPONENTS

### DISC BRAKE PAD

- 100% non-asbestos & low-metallic organic formula
- Stable brake power from low to high temperatures
- Low dust
- Noise free
- Effective temperature range up to 400°C.
- Average  $\mu$  0.35~0.45

### BRAKE LINING

- Stability
- Ultimate stopping power
- Low wear
- Long performance
- Drum compatibility

### BRAKE SHOE

- 100% non-asbestos & low-metallic organic formula
- Stable brake power from low to high temperatures
- Dust not easy to be attached to the rim
- Ultra-quiet
- Low hot conductivity, high resistance to fade
- Effective temperature range up to 300°C
- Average  $\mu$  0.38







## **BENARA UDYOG LIMITED**

(ISO 9001:2008 & TS 16949:2009 Certified Co.)

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