I.G.I_ind.

Cylinder liners

INDO-GERMAN INDUSTRIES

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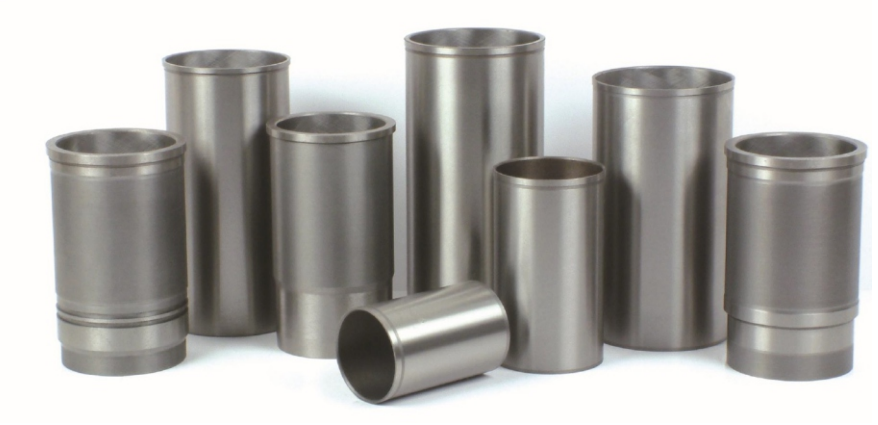
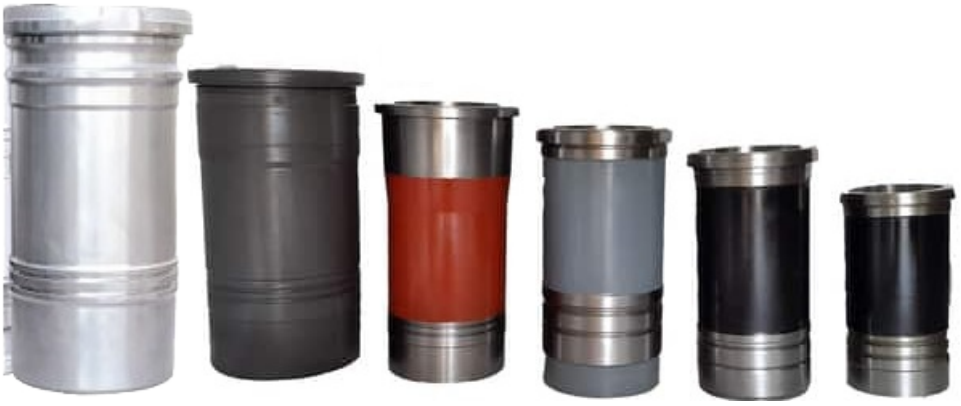
80mm to 325mm liner diameter





SUPERIOR TECHNOLOGY

IMPROVED STRENGTH

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The most difficult we do first.
Impossible may take some time.

What is Cylinder Liner?

The cylinder liner is a sleeve in which the piston of an engine reciprocates.
The life of a cylinder between its re-bores depends on two main factors:

(i) Abrasion, and
(ii) Corrosion.

Abrasion depends on the atmospheric condition and the efficiency of the air filter and oil filter. Dusty atmospheric air is more harmful as it increases abrasion in the cylinder.

Corrosion of the cylinder is caused due to the corrosive products of combustion, which are formed after burning of fuel with air.

Corrosion is accelerated at low cylinder temperature due to acid bearing moisture on th cylinder walls. The use of separate barrels or sleeves, which are known as cylinder liners, provides a long life to the cylinder.

These cylinder liners are made of superior material and are fitted in the cylinder block. The liners are removable and can be replaced when worn or damaged.

The cylinder liner should have good wear resistance and the ability to retain oil to lubricate the surface between the walls and the piston rings.

Types of Cylinder Liner.

The cylinder liners or sleeves are of two types:
1. Dry liners.
2. Wet liners.

1. Dry Liners.

Dry liners are made in the shape of a barrel having a flange at the top. The flange keeps the liner in position in the cylinder block.

The liner fits accurately in the cylinder. The perfect contact of the liner with the cylinder block is necessary for the effective cooling of the liner.

Also, the gas pressure, piston thrust and impact loading during combustion are resisted by the combined thickness of the liner and the cylinder.

Therefore, dry liners are thinner, having wall thickness varying from 1.5 mm to 3 mm and are used mostly for reconditioning worn liners.

The dry liners are not in direct contact with cooling water.

2. Wet Liners.

A wet liner is so-called because the cooling water comes in contact with the liner. This liner is provided with a flange at the top, which fits into the groove made in the cylinder block.

To stop leakage of cooling water in the crankcase, the lower end of the wet liner is sealed with the help of sealing rings or packing rings.

As the wet liner has to withstand gas pressure, thrust and impact loading, the wall thickness of the liner is increased and is made more than that of the dry liner.

Generally, the wall thickness of the wet liner ranges from 3 mm to 6 mm.
The outside of the liner is coated with aluminium so that it is protected from rust.

The wet liner is better cooled than the dry liner. It is easily removable when it is worn-out or damaged.

Comparison of Dry and Wet Liners.

1. A wet liner can be easily replaced whereas a dry liner requires special tools because it is tight-fitted in the cylinder block.

2. A wet liner is properly cooled as it comes in direct contact with the cooling water, whereas a dry liner does not come in direct contact with the cooling water.
Hence, the working temperature of a dry liner is more than a wet liner.

3. A wet liner needs leak-proof joints so that the cooling water does not leak into the crankcase, whereas a dry liner has no such requirement.

4. A wet liner does not require accurate finishing on the outside, whereas a dry liner needs accurate finishing.

5. Finishing may be completed in a wet liner before assembly, whereas a dry liner needs finishing after assembly.

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DURABLE

Durable Finish Standards Achieved through Cutting Edge Technology.

SAFER

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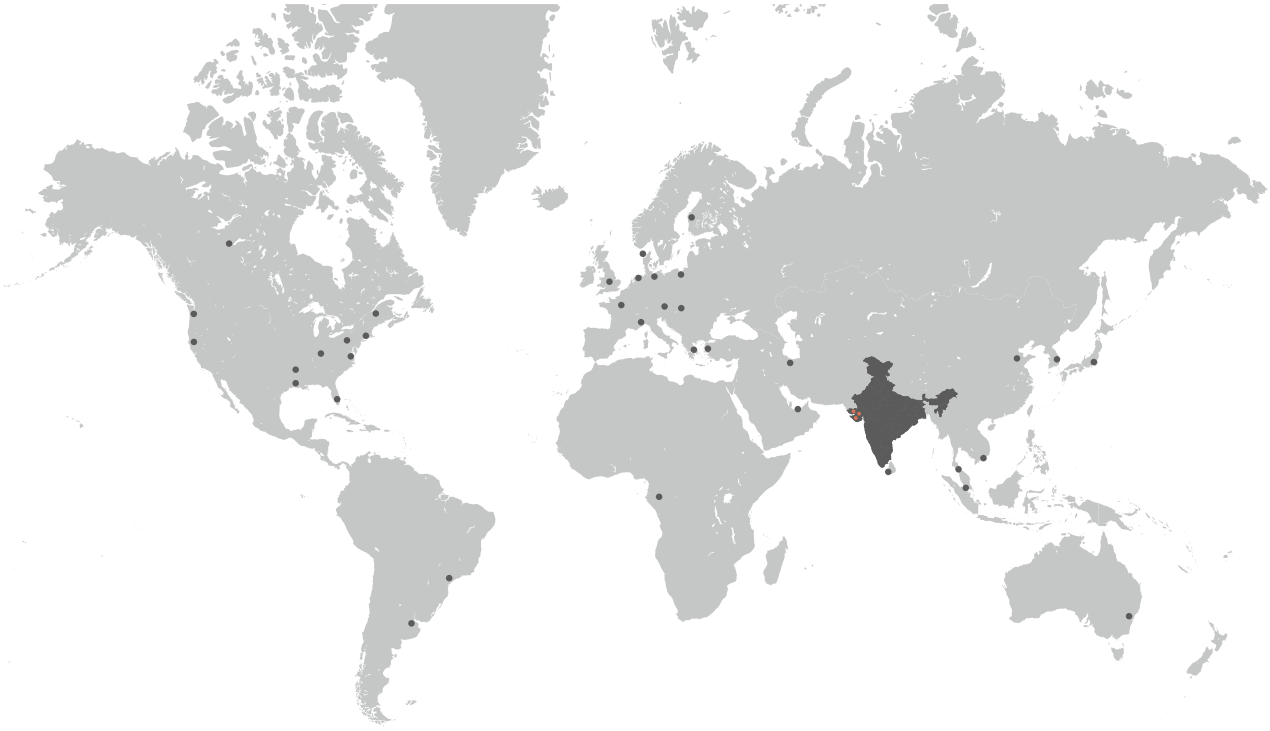

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