



# Ultimate protection for your cylinder liners

**MAN PrimeServ**

**MAN piston rings form a seal between the piston crown and the cylinder liner to retain combustion pressure and improve fuel efficiency, while also improving the utilization and retention of lube oil.**

**By combining specific layers of coating, MAN piston rings optimize engine performance, increase Time Between Overhaul, and maximize the operational lifetime of your cylinder liners and pistons.**

## **Cermet-coated piston rings**

Cermet-coated piston rings reduce the risk of scuffing and seizures, which can occur following prolonged operation on 2020-compliant fuel oils (e.g. VLSFO & ULSFO).

Cermet-coated piston rings were introduced as an effective scuffing countermeasure. They are now standard on our engines and recommended for all engines in service.

Cermet is a composite coating that is partly ceramic and partly metallic. The two components combine to form a material with high elastic durability from the metallic part and high-temperature and seizure resistance from the ceramic part. These properties improve overall wear resistance and toughness.

This helps to reduce the potential risks when using low sulphur fuel oils and minimizes cylinder lubrication issues. For certain engine types, the addition of chrome layers on the underside of the rings also helps to protect the piston crown.

Cermet-coated piston rings are also designed to perform even after an incident with momentary oil film breakdown, provided the oil film is restored, which ensures that the engine can continue operation until the next planned overhaul.

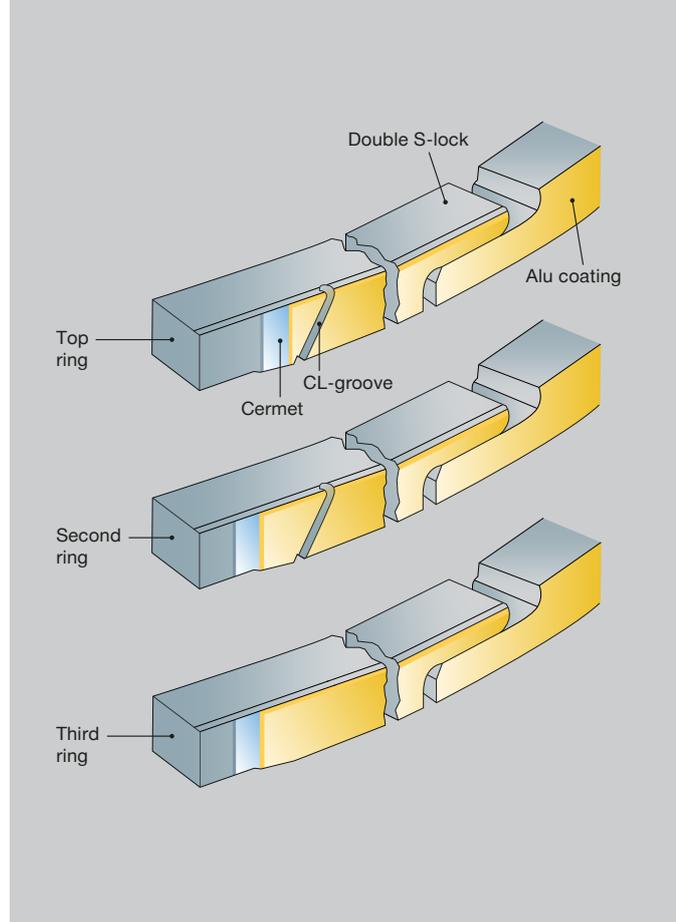
## **Alucoat piston rings**

Alucoat is a thin running-in layer that smoothens the initial running of the piston rings in the cylinder liners. It has a yellow appearance and is applied to all rings, even those with cermet coating.



# Made by the original engine designer

Our piston rings are specifically designed to give you the most from your MAN engine, helping to protect your cylinders from harm while delivering optimal combustion, emissions, and lube oil performance.



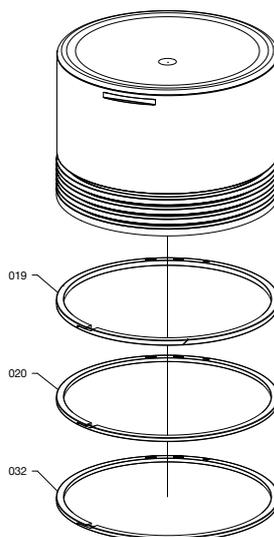
## CPR three-ring configuration pack

Based on the latest service experience and engine development, we now offer a three-ring configuration pack for low-speed engine types originally designed with a piston ring pack using four piston rings.

By introducing a Controlled Pressure Relief (CPR) piston ring design with gas tight finger locks, gas leakage through the piston ring pack is controlled by Controlled Leakage (CL) grooves.

Fitting a gastight piston ring in the third ring position makes the complete piston ring pack gastight.

This helps to maximize combustion efficiency and improve lube oil utilization. It reduces any deposit build-up between the ring lands, behind the piston rings in the grooves, and to some extent on the top land. This also helps to keep the piston ring area cleaner.



## Benefits of MAN piston rings

- Low friction
- Incorporates the latest design updates
- Increases cylinder liner operational lifetime
- Safe and reliable running-in time
- Maximizes piston operational time
- Improved Time Between Overhaul

## Services for MAN piston rings

- Cermet-coated piston rings are part of the MAN PrimeServ product portfolio for compliance with IMO 2020 regulations
- Maintenance kit for pistons

It is important you measure the cermet-coating thickness on your piston rings and plan overhauls accordingly. This table will help you to know when to take action.

### Cermet-coating thickness action table

<b>Above 100 µm</b>	No action
<b>100-50 µm</b>	Plan the overhaul of the piston ring pack
<b>50-20 µm</b>	Overhaul at the first opportunity

## MAN Energy Solutions

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