

## Astaloy CrM<sup>®</sup>

### High-performance material with excellent hardenability

Astaloy CrM is a pre-alloyed powder containing chromium (Cr) and molybdenum (Mo) giving unsurpassed strength and dimensional stability.

The high hardenability of Astaloy CrM results in very good strength after conventional sintering. The strength can be further improved by sinter-hardening. High-temperature sintering has an extraordinary effect on this material and improves both strength and ductility to excellent levels.

The fully pre-alloyed composition results in a homogeneous microstructure with high wear resistance, especially after nitriding.

**For more information, please contact your local sales representative.**

### Main product benefits:

- Cost-effective powder solution
- High hardenability
- Excellent strength performance
- Very high wear resistance
- Good dimensional stability

# Basic product characteristics

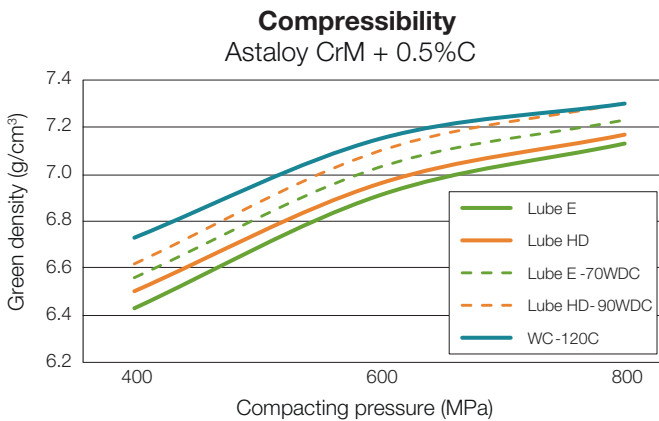
## Chemical composition

Cr	Mo	Fe
3.0%	0.5%	Balance

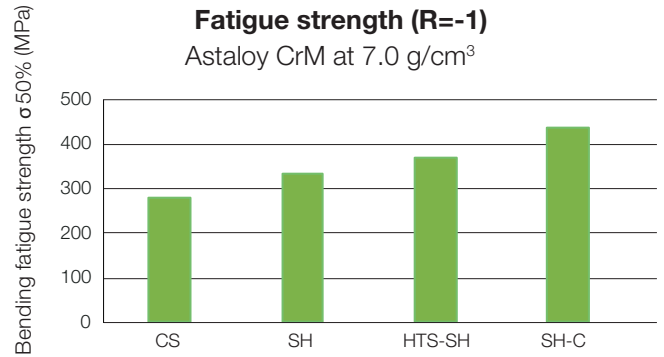
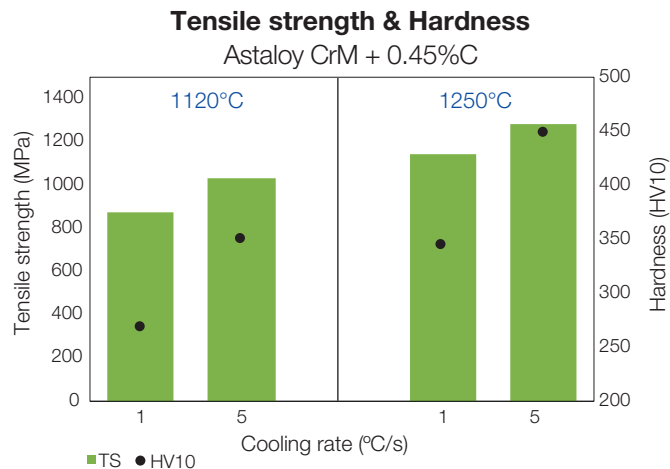
## Powder properties

Apparent density	Flow (Hall)
2.80 g/cm <sup>3</sup>	27 s/50g

The low oxygen content in Astaloy CrM<sup>®</sup> ensures a good compressibility. The powder responds well to warm die compaction (WDC) and warm compaction (WC), which enable even higher densities.



Astaloy CrM provides high strength and hardness in sintered condition. With accelerated cooling rate, a fully martensitic microstructure is obtained with even higher properties. The properties can be further increased by high-temperature sintering.



CS: Conventional sintering, T=1120°C, t=30 min, Atm=90/10 N<sub>2</sub>/H<sub>2</sub>, dT/dt=1°C/s

SH: Sinterhardening, T=1120°C, t=30 min, Atm=90/10 N<sub>2</sub>/H<sub>2</sub>, dT/dt=3°C/s

HTS-SH: T=1250°C, t=30 min, Atm=90/10 N<sub>2</sub>/H<sub>2</sub>, dT/dt=3°C/s

SH-C: Sinterhardening with C-potential, T=1120°C, t=30 min, Atm=90/10 N<sub>2</sub>/H<sub>2</sub>, dT/dt=3°C/s

Sinterhardening has been followed by tempering, T=200°C, t=60 min, Atm=air

Astaloy CrM provides excellent dynamic strength and outperforms other PM materials when conventionally sintered. The difference is even greater when high-temperature sintering and sinter-hardening are applied.