

POWER GENERATION VALVE SEAT & DISC

Substrate: Carbon Steel · TMetal Product: TMP06

POWER GENERATION

PTA / LASER CLADDING

• TMP06

PERFORMANCE METRICS

36-45 HRC

Deposit Hardness

UP TO 800°C

Operating Temp.

PTA / LC

Process

SPECIFICATIONS

SUBSTRATE

Carbon Steel

PRODUCT

TMP06

PROCESS

PTA / Laser Cladding

PARTICLE SIZE

PTA: -180/+53 μm | LC: -150/+45 μm

DEPOSIT HARDNESS

36-45 HRC

OP. TEMP.

up to 800°C

CHEMICAL COMPOSITION

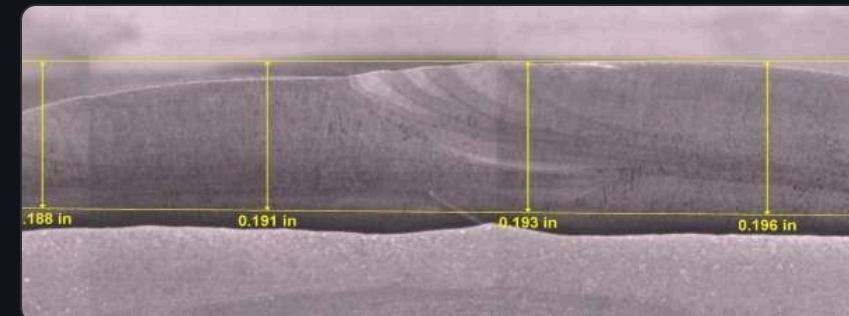
TMP06 — Co-Cr-W-C (Stellite 6 equiv)

CO	CR	W	C	OTHERS
Balance	30	4.5	1.2	Si, Fe, Mo, Ni, Mn

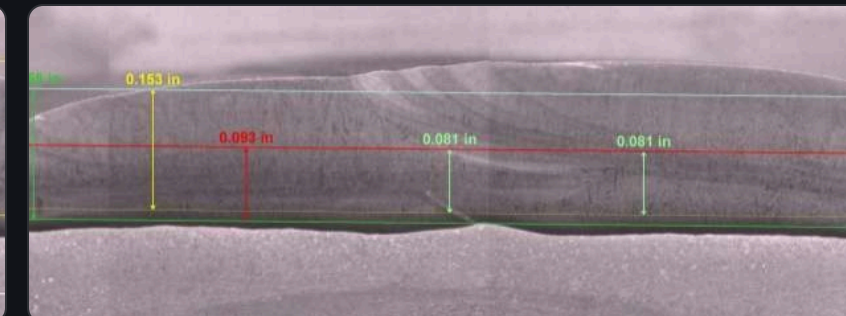
Typical hardness: **36-45 HRC**

OVERVIEW

Conventional and nuclear power generation valves operate under high differential pressure, elevated temperature, and repeated cycling — conditions that accelerate galling and erosion on seating surfaces. TMP06 hardfacing delivers a reliable Co-Cr-W-C deposit with proven performance in high-temperature steam and nuclear service, restoring and extending valve seat life without replacing the valve body.



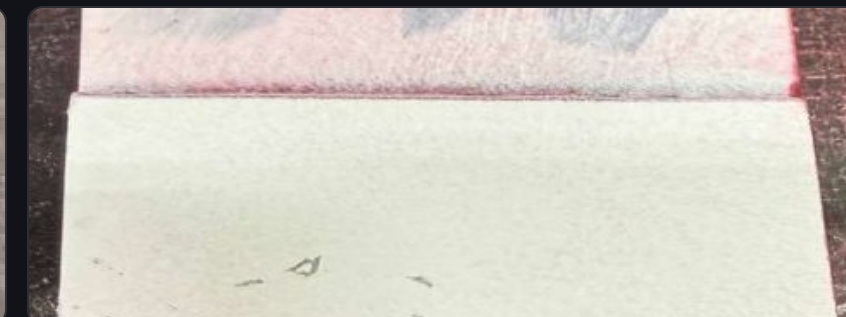
Macro — Layer cross-section (7.3 \times). Deposit thickness: 0.188-0.200 in



Macro — Layer measurement (7.3 \times). Total depth: 0.093-0.163 in



Machined sample — hardfaced valve disc after surface preparation



PT result — penetrant test confirming no surface-breaking indications

WHY TMETAL

Industry-standard Co-Cr-W-C chemistry proven in conventional and nuclear power generation valves

PTA and laser cladding provide metallurgical bond — no delamination risk under cycling

36-45 HRC hardness resists galling between seat and disc under high seating loads

Oxidation stable to 800°C — compatible with subcritical steam and nuclear primary circuit conditions

SERVICE ENVIRONMENT

High-temperature steam / nuclear primary circuit

High differential pressure

Repeated open/close cycling

Potential for moisture and condensate